JOINT STAFF WORKSHOP

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:	)	
	)	Docket No.
CALIFORNIA STRATEGY TO REDUCE	)	01-SRPD-1
PETROLEUM DEPENDENCE	)	
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CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET

HEARING ROOM A

SACRAMENTO, CALIFORNIA

VOLUME II of II

TUESDAY, SEPTEMBER 18, 2001

8:40 A.M.

Reported by:
Valorie Phillips
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I N D E X

I N D E X

P R O C E E D I N G S

8:40 a.m.

MR. FONG: My name is Dan Fong. I'm a member of the Transportation Technology and Fuels Office here at the Energy Commission.

Just before we start today's panel on strategies to affect consumer behavior, I'd just like to point out that if any of the other speakers for the panel that follows the initial panel have presentation material, please talk to the staff here at the break and we will try to provide you with assistance in loading that material up or arranging, you know, for staff to help you in displaying that material.

I'll turn this over to the moderator for this first panel and that's Mr. Leigh Stamets.

MR. STAMETS: Good morning. As we did yesterday we'll go through the presentations and then we should have some time for questions and comments at that time.

So the first speaker is Dr. Ken Kurani with the University of California at Davis.

DR. KURANI: Thank you, Leigh. I've been asked to talk about consumer information and incentives. Go ahead and change the slide.

Since the talk is short -- or the time is short, I'm not sure that my talk is, I'll give you the conclusion first in case we don't actually get to it, which is this:

I think that it is time to begin a social marketing campaign around petroleum use and efficiency and then wage in an adaptive management framework. And in the next ten minutes hopefully I will explain what all that jargon means.

I think the timing is right. The timing has been becoming right for the last decade or so, to launch a large-scale long-term marketing effort, including information and incentive programs around petroleum use reduction.

One of the preconditions for a market to exist is differentiated products. Things have to be different so consumers can make choices.

New vehicle technology is here in some cases, and is almost here in the case of things like electric drive vehicles, hybrids and fuel cell electric vehicles and those things, although the dates for fuel cells keep changing.

Recently unsettled gasoline prices have people at least thinking a little bit about gasoline use. And petroleum, electricity demand

and even global climate change also on the national agenda.

We've seen already some marketing campaigns by the state utilities around conservation of electricity use in households. I think the point for transportation is can we start a similar campaign before the next crisis.

I think the public involvement in this campaign is vital for two reasons. Actually two positive reasons, and then some reasons why the public needs to be involved because the auto manufacturers won't do this all themselves.

The positive reasons are that we can provide quality data to all parties, including public agencies, consumer groups and industry. We need public involvement to evaluate and implement societal goals around petroleum use reduction.

The industry won't do this all by themselves. Particularly the auto industry won't engage in market or research that doesn't capture market share for themselves, and hopefully at the expense of their competitors.

They won't offer market research just for public policy if it conflicts with their private profit goals. And they won't advertise

one product at the expense of another.

Examples include -- Ben Knight is here so I'll pick on Honda with just one example. One of the advertising for the Honda Insight shows it pulling up next to an early 1970s vintage Volkswagen van. That clearly isn't its competitor in the marketplace, but it makes an effective marketing statement.

But we do need consumers to consider closer competitors when they actually make their choices.

Next slide, please. I believe I'm paraphrasing the Vice President correctly, efficiency is a personal virtue. And I think it needs to be. I think this is exactly what we need to capture.

If we focus on efficiency solely as a private cost issue we face the potential certain rebounds effects. One of them is that as efficiency goes up the cost of travel goes down, and travel will go up.

You know, $10 of savings in gasoline from efficiency won't be turned into $10 of travel, but will be turned into some new travel. And some of the gains we would have had will be

eroded.

Another potential rebound effect is that over time households may upsize their vehicle offerings as they realize they can buy a vehicle that is as efficient as their current mid size by buying a full size in the future.

We want people to make continuing improvements of petroleum use reduction, not just tread water.

Next slide. There are several challenges and we'll start talking about information issue specifically now. The public is, by and large, poorly informed. They're poorly informed about underlying relationships; they're poorly informed about the options that are available to them and their relative effectiveness.

For example, efficiency. Consumers don't choose efficiency when they buy gasoline vehicles, as the solution to greenhouse gas emissions because the lay cultural model of efficiency and greenhouse gas emissions is that it's a pollution problem.

I won't go through all the steps of what the lay cultural model is, but the last step in it

is that pollution is solved by filtering equipment. And we know that's an ineffective solution in the case of greenhouse gases.

Go ahead to the next slide. Another challenge. The public can't express their full values in the marketplace. This series of data is taken from a question that the Worthland Company asks almost, and the time scale is discontinuous in the '80s, but they've asked it every year in the 1990s.

And what it shows is a nearly veto-proof majority of Americans believe that environmental standards cannot be too high regardless of cost. Now this is a question about standards and what government does, because government sets standards. It's not a question about the marketplace, but people can't choose in the marketplace to express this value.

Next slide, please. So we get this from The L.A. Times, March 2000, for most automobile shoppers in the U.S. environmental pluses and minuses rate somewhere below the number of location of cupholders in the hierarchy of reasons to buy a particular vehicle.

Even if this is true now it doesn't have

to stay true. Demand, just like supplies in historical process, involving innovation and markets and technology, demand is also a historical process. And we can initiate a process in which we move to make efficiency more important in the marketplace, and in which you make alternative fuels more important in the marketplace, and a whole variety of behaviors that reduce petroleum use.

Next slide, please. How to address these challenges. Okay, explain my conclusion. Social marketing, a definition from Allen Andreasen in his book from 1995, is the application of commercial marketing technologies to programs designed to influence the voluntary behavior of target audiences in order to improve their personal welfare and that of their society.

Next slide. For marketing petroleum use reduction, what's the product. Well, social marketing we recognize a wide variety of products. They can be objects, efficient vehicles, alternative fuels, energy instrumentation in your vehicle so that you actually have feedback on how you're doing in terms of your driving.

We can market services. Improved

vehicle maintenance would be an example here. Practices, driving habits and trip -- activity of location choice, mode choice. You can also market intangibles, things like environmental values, public health, lifestyle, public discourse.

Next slide, please. This is a picture of, borrowed again from Andreasen of social marketing. And here's where I'll talk about adaptive management, also.

We start by listening to the marketplace. We go out and we find out what people know, we find out what they believe, we find out what they want. I've touched a little bit on the fact that I think we're still at listening, and it's still important to be at the listening stage because we're still finding out by and large what the public doesn't know.

You then go back and plan, create a structure, who's going to do what. You pretest your instruments; you pretest your plans. You implement and you monitor and you feed back and you do it all over again. This is the adaptive management part of it. Adaptive management is about the willingness to start doing something. Monitoring your progress and adapting programs and

changing them as time goes by.

Next slide, please. Information. My last couple slides show specifically about information incentives. Education, outreach, demonstration of new technologies, demonstrations of behaviors, demonstrations of practices.

Information is necessary, but not a sufficient condition for getting consumers to reduce petroleum use. There are too many non information barriers.

I don't know if David Greene, who spoke yesterday, had a chance to tell you his Insight rental story, but he had a call, attempted to rent an Insight at the San Francisco Airport last week to travel to a conference in Asilomar. And the person working the counter basically refused to rent them the vehicle. For every reason he gave them for not -- for why they shouldn't rent the vehicle, they said, no, no, no, we'll take it.

Amongst the reasons included the fact that the person behind the counter told him the vehicle ran on natural gas. Which it doesn't, of course, it runs on gasoline.

So non information barriers and vehicle availability. The information barriers include

just not those of the consumers, but of those people who might sell and service them.

Information must be targeted at market segments. This goes back to the historical process of market development. We start with groups of people who are most amenable to certain products, behaviors, practices. And over time, though, we want to reach beyond those groups.

Information needs to be delivered by multiple means. Needs to be delivered to multiple and appropriate points in the decision making process.

Example of this would be the use of both internet and published books to make available vehicle purchase guides. These positioned information sooner in vehicles -- sooner in vehicles -- sooner in people's vehicle purchase decisions.

Things like window stickers on the cars by and large get to people too late. Once you're at the dealership you've already made the big energy determining choice. You've already picked out a model and -- models to look at, sizes of vehicles to look at, the kind of vehicle, the big things that determine choice of petroleum use.

Next slide. Incentives. Incentives really do require adaptive strategies. In all the places that we've actually studied markets, either real or hypothetical, for alternative fuel vehicles, the role of incentives has changed dramatically over time.

Initially incentives may create the purchase of a product or a service or adoption of behavior or practice. This is important, because in the attitude behavior models there's a feedback in which we recognize more and more that actually it's not attitudes that shape behavior, but behavior that shapes attitude.

It's often quite important to get people started on something. And as they have experience with it, as they gain experience with a new technology, with an alternative fuel, they will develop attitudes that embody the larger -- trying to avoid the use of the word Gestalt -- embody the larger object and all of its meanings and practices.

A specific example. When we did research on electric vehicles, we often found at least as important to get people to first figure out whether or not an electrical vehicle is a

practical transportation tool before they bought into the environmental benefits of it.

That is, you know, there's a practical use of the vehicle, it's a thing we use to get around. People buy that first. Once they get into that, once they start driving the vehicle, a lot of the other attributes become important to them.

We have found in places, and one place where we studied natural gas vehicles in Canada, we've studied them in New Zealand, places where there are real markets for real vehicles. Removal or erosion of incentives can create disproportionate downturns in consumer adoption of these vehicle types.

This is part of being adaptive, of implementing your program, monitoring. If you're going to change incentives, you may have to market the change, itself.

Government incentives, in particular, seen as strong signals of policy and intent. And when you change them people get nervous. You need to bring them along with you so that your marketing isn't just of the incentives in the first place, but if you're going to change the

program, that change needs to be marketed.

Consumers can generate surprises. In a thesis that I'm actually just still editing the final version of, Brian Abbanat, who's a master student at Davis, and an intern at the Energy Commission last year, did interviews with households in California who had bought natural gas vehicles.

And one of the things that he learned was that the convenience incentive of being allowed access to the high occupancy vehicle lane was far more incentive -- far more -- far more important to people than any of the financial incentives that were offered. The time savings and the reduction in the variability of travel times was hugely important to people.

This, frankly, surprised me. When the legislation was first passed allowing vehicles, I was sort of like, well, that's nice, but no one's going to -- but this is the sort of stuff you learn when you get out and listen to people and you talk to people in a context that really allows them to express their full experiences to you.

Consumers often use shortcuts, which is why sometimes cost incentives are a value in

surprising ways. One shortcut is to use things like the per gallon price on the pump as an indication of whether your investment in an alternative fuel technology is paying off.

But pump prices alone can send conflicting signals. We go back to work that Dan Sperling and I did in the middle '80s on consumer experience with diesel vehicles.

People became very dissatisfied when the pump price of diesel became higher than the pump price of gasoline. Despite the fact that many of these people, based on the vehicles they purchased and the amount of miles they'd driven, were still saving money.

Last slide, please. Information incentive programs to promote petroleum reduction exist in a larger societal context. Lots of other things are going on, lots of claims and demands are being made on government and public time in auto industry and their time and resources.

We need to fit within that larger context. Part of that larger context has to do with things besides just information and it centers around petroleum use reduction practices and products.

It has to do with demonstrations of technologies; demonstrations of behaviors; outreach. Things that aren't just information or incentive related.

And adaptive management requires us to implement programs, monitor effectiveness, and then adapt and update our programs as we continue.

Which means, my last point, this requires sustained commitment by all actors, by government, by industry, by consumers and citizens. I think we can get the consumers and citizens to come along if we can attach the products and behaviors we want them to adopt to deeper values.

Thank you.

MR. STAMETS: Thank you, Ken. The next speaker is Mike McKeever from Parsons, Brinckerhoff, Quade and Douglas. And he's addressing land use planning strategies.

MR. McKEEVER: Thank you. We've done a couple of studies for the Energy Commission over about the last year, trying to get a general handle on what the possible order of magnitude benefit from changing land use patterns throughout the state would be to travel behavior.

And I'm going to summarize both the national study that was done on that point, as well as our findings from the recent work that we have done.

All of these approaches compare conventional development patterns to a smart growth pattern. And smart growth, of course, means different things to different people.

But in general it means a more city centered rather than rural or suburban centered growth pattern, which means higher density. It's a transit oriented pattern that concentrates development around light rail and bus corridors, and focuses on pedestrian oriented designs so that people can easily get to and from the transit system.

It focuses on a small scale on mixing land uses so that people have shopping and entertainment opportunities near to where they live. It includes often market pricing. The most obvious example of this is parking meters or some kind of parking fee structure so that that impact of growth does not seem to be free to the user.

And then balancing jobs and housing at a macro scale so that employment centers are located

with housing so that people at least have the opportunity, if they so choose, to have shorter rather than longer trips to and from work.

Rutgers, in the late '90s, updated the seminal work on this issue nationally, the cost of sprawl, artfully entitling it the cost of sprawl revisited.

We participated with Rutgers and the Brookings Institution and a firm called Eco Northwest, in this study. And to go a little bit in more detail on this on the next slide, but you can sort of see the statistics here. Not surprisingly California is, given the methodology they chose to use, sort of at the high end of the list of a sprawling state.

I guess the positive aspect of that is that there's great opportunity for improvement there if some of the smart growth measures can be implemented.

Then the two approaches we've done for the Energy Commission, which is a place type study, about a year ago; and a study that we're just finishing up, which is a survey of what the MPOs around the state are doing related to this topic.

Slide, please. The Rutgers study was based on countywide data nationally. And they looked at the growth rate and pattern in every county in the country, and set up a methodology to reallocated the growth in what they called the sprawling counties to other locations, including the urbanized centers within growth boundaries, and infill development.

Which is, when you have the opportunity to look at this issue in depth, provides a surprisingly large capacity for land development that is typically overlooked.

And then they also did a little more vigorous reallocation of growth, in some cases to second cities or inner ring suburbs, often is where they're located, and to urban areas.

And they had really a pretty good national database, the national personal transportation survey, which is done on a regular basis by federal highways; that gives us a pretty good idea of what vehicle miles traveled per capita are in these various place types that they've defined.

So, you can reasonably, I think, make an estimate about what would happen to vehicle miles

traveled if you reallocated the growth to the more transportation friendly place types, if you will, and away from the urban fringe and the rural areas. And then you can convert those VMT savings into estimated energy impacts.

Next slide, please. There are copies of these, I apologize; some of these numbers, I know, you're going to have to squint out, but there are copies of these slides on the back table, I think.

You can look at that first set of numbers, the VMT per capita column, to see, get a general sense of the order of magnitude as you move from an urban development pattern down to a rural pattern at the bottom, what happens to the average vehicle miles traveled per capita.

And you can see in the Rutgers approach how the trend, estimated trend over the next two decades is shifting even more away from an urban oriented pattern to a more suburban and rural oriented pattern.

VMT, by the way, over the last two to three decades in this country, has grown at a much faster rate than the population growth rate, which is another indicator of the sprawling development pattern.

So then you can see for the State of California what this cost of sprawl study did, is they started to just, at the margin, reallocate some of this growth out of the fringe areas and into the urban areas.

You can see that the changes were not dramatic, at least when you look at them statistically. Some of this would have a substantial impact once you get down to the land.

And the bottomline is that you get, via that study, a -- the Rutgers study came in at about 7.5 percent reduction in VMT from applying these smart growth variables.

When we took the next step and in the State of California built more of the place types with the future growth that are transportation friendly. We didn't pick up any people or jobs from where they are now and reallocate them, we just took the increment, the growth increment.

And said, if we could put a higher percentage of that than sort of the basecase future would yield, into these urban and second city areas in particular, what might be the additional benefit. And the upper bound of that approach gets you up to 18 percent benefit.

Now, I should say that in some respects I think these estimates are conservative, because there are many in the land use planning and urban design field there are many tricks in the tool kit that you can use once you can get to a finer grain. And this is obviously very coarse grain sort of research that's going on.

Next slide, please. The study that we're just finishing up was looking at what the MPOs are doing throughout the state. And we've done a survey of 15 of them. And the question was, what, if anything, are they doing to model the possible benefits of a smart growth development pattern.

And then if they're doing more than modeling, then we tried to pick up on that, too. And about a third of them have -- are doing something substantial in the area of trying to at least estimate what the benefits or impacts, I should say, of smart growth development patterns are.

And the variables that they're typically looking at are concentrating growth in city centers and around the transit corridors and stops. Ramping up the supply of transit, both in

terms of service territories and headways, frequency of service; charging for parking; and starting to look at this jobs/housing balance issue, which in this state is a huge issue.

And then from there we tried to do, again, a sort of a coarse grain extrapolation as to what might -- what the impacts might be statewide.

Next slide, please. And you can see the range of impacts that have been estimated from these five metropolitan regions throughout the state. And so using this method we're seeing a range of about 2.5 to 10 percent VMT and energy reduction. You can see the possible energy benefit there.

The bottom set of information, to me the first sub-bullet there is really a nice sort of thing to latch onto. And it matches our experience when we've been able to do more detailed modeling and planning and urban design work in various regions across the country, is that it's realistic to think that if you're reasonably aggressive with smart growth at a regional scale, you can stop the increase in VMT per capita.

It's probably unrealistic to think that except in a few cases that you're going to substantially reduce that number. But merely stopping it is a substantial benefit compared to what the historical pattern has been.

And then the bottom sub-bullet I'd also call your attention to. This issue of jobs, housing and balance, which is sort of at the macro scale. I'm not talking about the micro scale where, you know, do you have a corner market in your housing. I'm talking about our employment centers located near subdivisions so that you have shorter trip distances.

And I know I'm telling you the obvious, but this is a huge issue. And very much unaddressed throughout the State of California.

Final slide, please. We were asked to just make a sort of a preliminary assessment of what might be possible to do about promoting smart growth, at least for the transportation benefits it might yield.

I'm going to take these bullets from bottom to top. The first is that many of the MPOs don't model the benefits of smart growth. And even those that are attempting to model them,

don't have sophisticated modeling techniques to really accurately model it.

And so we're trying to do very political, very difficult land use planning, talking about changing the way people use their property without the benefit of good information.

And I believe there's a great deal of fertile ground to be plowed, simply by concentrating on helping the MPOs to provide good information to themselves and their members and the broader public, about what the impacts of changed land use patterns on travel behavior might be.

Secondly, they can take that information in an aggressive outreach and education campaign with their public. The good news about the smart growth field is that many, I would venture to say most, of the measures that are employed when you're trying to do smart growth are really well received measures when people take the time to understand them.

They improve the quality of life in people's communities and neighborhoods and regions. And so, it's, when you do it right, have the opportunity to do it right, these are a

saleable set of planning actions out there with the public.

There's, of course, reaction to density issues everywhere, but even that, if you approach that correctly, it's been our experience that you can change the paradigm with which people examine that issue.

The more controversial issue, but in my opinion very important, is to increase the role of the MPOs in actual land use decision making. And there's a whole continuum here of what could be done. You don't have to view this as extracting the authority to issue land use entitlements out of the cities and counties and into a regional government. You don't have to go that far.

But there's a lot, you can't get your arms around this issue without dealing with it at the regional level. And so we have to start paying attention to the importance of the MPOs in making progress on this issue.

There's lots of interesting legislation out there. We've picked out just three to briefly call your attention to. A local legislator from the Sacramento area has a bill to use the Sacramento region as a test case, to try to change

the dynamic of the fiscalization of land use. And instead of distributing sales tax dollars based on where they're collected, they would be based on the origin of the spender of the purchase.

And this bill's gone through many drafts, and I'm not even sure I'm familiar with the most recent draft of it. But it's a very innovative piece of legislation. It would be nice if it could be adopted and tried to see if some of this dynamic can be changed.

There's another piece of legislation. This has been around in a couple of different forms in the last sessions. To simply require or encourage that when the RTPs, regional transportation plans, are regularly updated by the MPOs, that they at least create and examine the merits of the smart growth scenario as they do this.

It's astonishing to me how little this happens, either because of lack of technical skills or political will, hundreds of millions of dollars of transportation investment decisions are made without people even looking at the issue of well, if we had a different land use pattern would we really need some of these investments, or would

we choose to make different investments.

And then finally, the Katz legislation, which would go right at the employers and basically allow them to, and incentivize them to, instead of providing free parking for their employees as a benefit of working there, give them cash to replace that. And they could choose to go buy their own parking, or fund transit with it, or get to work however they wished.

Thank you.

MR. STAMETS: Thank you, Mike. Next, Sandra Spelliscy with the Planning and Conservation League. And she's going to address increased transit use and smart growth.

MS. SPELLISCY: Good morning and thanks very much for inviting PCL to participate here today. I am going to speak this morning, and I hope pretty briefly, about smart growth, transportation and how to fund it.

And specifically I want to talk about a PCL policy proposal that we've developed that would increase available funding for transportation infrastructure. And then would direct that funding in a way that promotes smart growth, or what I like to call, because smart

growth has been so over used, is sustainable development in our state.

For those of you who are familiar with PCL you probably know that this proposal is both the brainchild and the passion of our executive director, Jerry Meral. But since he spends his days lately traveling around the state trying to build support for this program, I'm here in his stead, and I'm going to do the best I can to fill in for him.

There are a couple assumptions that sort of underlie what I'm going to talk about this morning, I think help tie into what we're discussing here. I just want to lay those out for you. Assumptions that our organization believes to be true.

The first is that developing sustainable growth patterns in California is a way to reduce our reliance on the automobile as the dominant mode of transportation in the state. And, of course, reducing that reliance would also reduce our petroleum consumption.

The second assumption is that developing appropriate transportation infrastructure is essential to our ability to grow in a sustainable

fashion in the state.

Just by way of a little background I'm sure, as all of you know, transportation infrastructure in California is funded through a combination of federal, state and local sources. And historically, most of the infrastructure money has been spent on road and highway construction and maintenance.

About 30 years ago in the 1970s we saw the beginning of a shift away from those two major funding categories, and some increased emphasis on mass transit, funded for mass transit and alternative forms of transportation.

But despite those 30 years of investments in alternative transportation our state still falls short of the infrastructure needed to really change the way we move people in this state.

Dan, you can go ahead and put up the first overhead. Just to give you an idea of what a lot of people think that we're facing, there are some estimates out there these days that say even if we fund all of our current local transportation plans, traffic congestion in California will increase by 200 to 250 percent in the next 20

years in many areas.

I apologize, that's obviously not going to be readable, but all of this information is available on our website, pcl.org, so this is all just sort of some facts and figures that go along with the proposal that we've developed.

But let me just run through this really quickly. It's very clear that we're facing a major shortfall in transportation funding in the state. And just to give you a few numbers, probably the most comprehensive look at this was done by the California Transportation Commission, which recently projected that in the next ten years we face a transportation funding shortfall of over $100 billion.

Cities and counties in California have said that they lack $10.5 billion over the next ten years just to do their local street and road pavement and rehabilitation projects.

Funding shortfalls for rail and transit operations and expansions in order to relieve traffic congestion have been estimated at $39 billion over the next decade in the state.

One area of transportation that we really haven't dealt with at all in the state, but

we are beginning to realize that we must, is the impact of our transportation system and infrastructure on water quality. And there are estimates that we need about $6 billion over the next decade simply to fund highway storm drainage retrofit projects in order to mitigate the impacts of our transportation system on our waterways and wildlife habitat in the state.

In the six counties of the southern California region, excluding San Diego, it's estimated that in the next 25 years there will be a $10 billion shortfall in what's needed just to maintain present transportation systems and a $40 billion shortfall to make the improvements that would keep pace with projected population growth.

And finally, in San Diego, they're projecting an $11.5 billion deficit in funding for its most recent 20-year transportation plan.

So we're looking at a massive black hole in terms of infrastructure funding. And we really need to develop some policy approaches to try to fill in that gap in the state.

So, towards that end, PCL has developed a program which would bring an additional approximately $800 million a year to funding

schemes for transportation. And at current budget levels that amount would represent less than what is about 1 percent of the total state budget.

So we think this is a fairly modest approach in terms of the need, but we think it's an important step that needs to be taken in the state.

Do you want to try the next slide and see if it's any better? I don't know if it will be but, this is just a little summary of what we call the Traffic Congestion Relief Act initiative is about. It's designed to provide transportation alternatives to make it possible for people to get to work and make the other trips faster; transport their children more safely; maintain our streets and roads; build new transit and road infrastructure; and reduce air and water pollution impacts of transportation.

And what's a little bit unusual about this proposal our organization has developed is it creates this trust fund, and it dedicates different portions of the trust fund to very specific transportation programs.

So it seeks to do things such as eliminate roadway traffic bottlenecks; to build

new light rail and bus services; to provide operating funds for transit. Very important, because we don't have a dedicated source in the state funds right now in the state for transit operation.

It would dedicate funds to expanding transportation options for seniors and the disabled. Improve traffic safety by reducing congestion. And then again, reduce air and water impacts. And provide new safe, clean school buses for children to get to school.

So, let me just tell you briefly -- there is another slide but I'm not going to bother with it -- that how we've broken down what in the proposal where we think this money should go.

Oh, and before I get to that, let me mention that there will be on the ballot in March of 2002 a constitutional amendment that has been placed there by the Legislature that would dedicate the state portion of the sales tax on gasoline to transportation funding. But we think that this is, you know, -- although that's an important step, it's not -- we don't see it in lieu of the program that we're proposing. But it's simply additive.

It would give some more money; in the first five years, all of that money would go to the projects in the Governor's transportation program. A lot of that is mass transit, but it still is -- it's not the kind of money that we need.

The PCL proposal, on the other hand, the core of it would take the state portion of the sales tax on the sale or lease of either new or used vehicles in the state and dedicate it to transportation. So that's where the money would come from that would create this trust fund, that then we would dedicate to these particular uses.

So let me just run through that really quickly. And, again, as I mentioned, at current budget levels we estimate that to be about, it would give us about $810 million a year. Obviously, you know, if the economy changes and sales tax income declines, that would change.

So overall dollar amounts, you know, in different areas could drop. But the percentages would remain the same. And the way the initiative is structured it would not be able to be changed by the Legislature.

So, we wouldn't get in a situation where

the Legislature could simply start to, you know, everybody do their favorite local pork bill project or whatever. That we would maintain these specific categories that we think are important for reducing congestion and also promoting sustainable development in California.

So, the first category is 18 percent of the funds, or $146 million would go to congestion bottleneck projects. We do think this is important in terms of petroleum consumption, as well, because obviously traffic congestion and people idling in traffic does increase consumption.

There's a report by the Southern California Association of Governments that in 20 years the average speed on the Los Angeles freeways may be about 16 miles per hour.

So there's a portion of the fund that would be dedicated specifically to that. Twenty-three percent, or $186 million a year would go to transit capital. That could be anything from purchasing right-of-way to new stations to rolling stock, that kind of thing. But specifically for mass transit, so bus purchases, as well.

Then we have 3 percent, or $24 million a

year for transit oriented development incentives. And these would -- this money would be allocated as grants to local governments in order to fund what we call sort of the public benefit portion of private sector transit oriented development.

So it wouldn't go towards building, necessarily building the entire TOD project, but what we'd like to do is partner with these local governments to help pay for the public portion of what would otherwise be private projects, to make them more enticing to private developers.

And so that could be money for things like safe and attractive walking access to rail stations and surrounding jobs and housing. Street changes or facilities that would be needed for bus, shuttle and bicycle access. Parking garages, libraries, child care centers, senior gathering places, other community needs that could be located in a -- near, in transit oriented development, at a transit station, or reducing land costs to insure housing affordability.

And let me mention that this looks like a pretty modest proposal, and it is. It's a fairly small share of this fund. But our approach here is that, you know, as all of you know, land

use is and always has been an issue of local concern in California. The state doesn't get involved in land use in general.

And although our organization, and I think a lot of other members of the environmental community believe that we really need to move towards greater regional and state involvement in land use planning issues, that we simply are not yet in that political climate, and do not yet have the political will to really be doing that on a broad scale.

So this is sort of a first step in saying, well, we can't change the regulatory climate yet, but we can provide money for incentives so that it will be more attractive for private developers to come into the marketplace and do transit oriented development.

So that's our thinking about that part of the proposal.

Another category is transit operations. That would be 17 percent or $137 million a year. Again, we don't have any dedicated source of funding right now in the state for transit operations. That's always sort of been the step child in terms of mass transit funding. So that's

very important.

And then the final categories are things like senior transportation or Dial-A-Ride programs to recognize we have an aging population in California that's going to need more and more help in terms of maintaining its independence in getting around in an increasingly congested and dangerous state.

Rail, street, grade separations, bicycle, pedestrian infrastructure and safety, very important. And in this proposal money for clean fuel school buses so we can replace old school buses that don't meet safety standards, and also are cleaner to operate.

Hopefully get eventually increased fleets so that we would see fewer automobile trips to schools as there are more clean safe buses available.

And finally, some money for rural public transit. And inner city rail and capital operations, that would be 4 percent, or $32 million a year.

And then there are some other categories that deal with environmental responsibility and improvement that I've already mentioned.

So, anyway, it's a pretty comprehensive proposal. Again, if you'd like to read more about it you can go to our website.

So let me just conclude by saying, you know, I'm not bringing this forward today looking for a specific endorsement in terms of the initiative, but rather to present this as a proposition that if we do want to include sustainable development in the mix of strategies that we use to reduce our dependence on petroleum based transportation fuels, then we really must adopt a policy approach in the state that permanently increases available funding for transportation infrastructure.

And that in addition to adding the new funding, also directs that money in a way that does promote smart growth in the state.

Thank you very much.

MR. STAMETS: Thank you. All right. Our next speaker is Donna Liu with the Natural Resources Defense Council. And her speech is location efficiency in land use planning.

MS. LIU: Good morning. For those of you who are unfamiliar with the Natural Resources Defense Council, we are a nonprofit national

environmental advocacy organization. We have over a half million members nationwide, and over 90,000 of those members are located in the State of California.

First slide, please, Dan. Thanks. You can kind of make out that when NRDC started looking at how much households are spending on transportation expenses, we found that it increased from 18 percent to 19 percent between '94 and '99.

We found this alarming because this actually is an investment into an ever-depreciating asset, the automobile. We also felt that this was taking away from potential household dollars that could be used in an equity building investment such as a home.

Can I have the next slide, please. We started looking at where the money was going, and we found that VMT has steadily increased since 1950. Between 1950 and 1970 we felt that this was largely because of the increase in household income. But after 1970 income stagnates, and VMT continues to increase.

Next slide, please. So that's relatively a flat line, and I can have the next --

well, no, actually we'll hold off on that. So VMT is increasing, transportation expenses out of the household are also increasing. And we wanted to figure out a way as to how can we capture the transportation cost savings based on land use design. But we needed to design a study first and foremost.

And so that's when we started looking at the physical characteristics of three general regions, the nine-county San Francisco Bay Area; five counties in and around Los Angeles, excluding San Diego County; and some counties around the Chicago region.

And we looked at residential density, transit access. We looked at proximity to local shopping, pedestrian friendliness of neighborhoods. We looked at center-to-center proximity for commute purposes.

And we wanted to examine specifically how many cars people were owning at the household level and how many miles they were driving per year.

And we found, next slide please, we found that as density increases, that's the X axis, the auto ownership per household decreases

significantly. And those three lines represent our three separate regions.

And as you can see, that's a very very strong statistical fit. So a lot of skeptics in the early years of our study questioned as to why we'd use Los Angeles as an examination. And we wanted to show that it doesn't really matter what the public perception is as to how a particular community is getting around and what their land use density is all about.

But the reality is that as people have more options, such as transit access, such as proximity to the services that they use on a daily or weekly basis, they are going to be less dependent on their cars.

For those of you who are statisticians, this, I think, represented an R square in the '90s, which is virtually unheard of.

Next slide, please. We find something similar and even better when it comes to VMT correlation. And when we show this to the policy makers and explain it, they are stunned. Because they never, in their wildest dreams, ever thought that a city as dense as San Francisco could be compared to a city, as they perceive is not as

dense. And that would be Los Angeles.

But, surprisingly enough, Los Angeles is one of the more dense metropolitan communities in America.

We also found that in general, as residential density doubles, the VMT will decrease by 25 to 30 percent.

In addition to finding that our findings were generally consistent among three regions, we took out four variables that we found were the most significant when it comes to auto ownership, and VMT per household.

And those four were residential density; transit access, meaning frequency of transit; and the capacity of the vehicles. We also looked at household income, and that makes a lot of sense because as the household is more wealthy they're more likely to own more cars or recreational vehicles. And also household size.

Next slide, please. So, this is a three dimensional graph of our findings in the Bay Area. And the very very top triangle, kind of that grey triangle, shows that represents perhaps a household in the most, I guess, sprawl type of area.

They have very few households per acre; in this case, two or one. They have no transit. And their annual auto costs per household is around $8000 or $9000.

The lower area that's kind of brownish, that could be seen as a medium density area. That could be in many areas in San Francisco or Oakland. And there we have household density of about 350 to 400 units per acre. The zonal transit density is about 600. And as you can see, the auto costs then drop to perhaps $1500 or $2000 per year.

We wanted to figure out how we could use these variable as, and build them into a case for land use in transportation planning.

And we started making some assumptions. One being that looking at what the state department of housing, what's -- HCD, the stage agency -- Housing and Community Development, thanks. They're assuming that the state will need to add 4.2 million new households by 2020.

And if we were to assume that each unit goes on a half acre of land, by 2020 we're looking at those 4.2 million new households contributing 109 billion VMT per year. Using 5.7 billion

gallons of gasoline a year. Consuming 2.1 million acres of land. And requiring 475 square miles of roads and sidewalks. That's square miles.

But, if those same number of units were built at 100 units per acre, which is something like a medium or high density type of design, we're looking at 32 billion VMT per year, as opposed to 109 billion. And 1.68 billion gallons of gasoline a year as opposed to 5.7 billion.

In an instance like that we're also looking at car ownership on average of .7 vehicles per household.

Now, we recognize that we're going to be getting a lot of criticism from people who believe that everyone is going to want a house in a low density kind of suburban, bucolic setting. But NRDC, a few years ago did a study comparing Metro Square, which many of you may be familiar with, which is a 46-unit, single family development here in downtown Sacramento.

We compared that with two suburban, kind of exurban communities outside of the city. The density of Metro Square is 20 units per acre. And every unit sits on an approximately 1700 square feet of land.

And surveys that we took of all residents showed that residents in Metro Square own fewer cars per household; made fewer trips per household. The residents walk more, and their satisfaction was significant to the point where they would buy there again.

We've had two applications of our research since we came out with our findings. One is that through the development of algorithms that we use to predict household auto ownership and VMT, we were able to develop a new kind of mortgage product, which we call the location efficient mortgage.

This essentially allows a household who wants to buy in a mire dense kind of urban community with transit access the ability to have an increased household income recognized by a lender, in this case our partner is Countrywide Home Loans.

This allows them then to qualify for a higher loan amount than they would otherwise. And this then allows them to compete appropriately in the housing marketplace.

So, as opposed to a consumer feeling that they have to be pushed out into a very low

density suburban area with no transit access and few services, we're essentially increasing the options that they have to buy in what they might find to be a more desirable area, and qualifying for it.

We initiated this program in the nine-county Bay Area, in Los Angeles County, Orange County and in the City of Chicago. We've had it going on for 18 months. Our major partner is FannieMae, who a lot of you know is the major source of home funds for the United States.

And actually we've only been able to originate one loan in California, and that was in East Oakland. Unfortunately, FannieMae has a Congressional loan limit of $275,000.

So as much as they want to do more volume in California, they find they can't because of market prices.

In Chicago, conversely, we've had 31 loans close. And it looks like we're going to have more.

And actually I neglected to mention one other city, Seattle, where we've had 12 loans close, largely thanks to the very strong support of Mayor Paul Schell up there.

The interesting thing also about what we were able to find is that over a 30-year period people are going to be spending more money if they are living in kind of a low density area. They're going to be spending more money in transportation, in a total loss on investment, as they would have buying that home in the first place.

And we essentially just wanted to bring all those dollars back in and have them be appropriately recognized.

The second application where we've been able to make use of our research has been in a parking website for the Bay Area through the nonprofit housing organization of Northern California.

And there we started working with NPH because they had told us a lot of their multifamily developers were finding that they were unable to provide a requisite number of parking spaces for projects that they were doing. And that they didn't want to provide the spaces and then have those costs, in turn, carry over to the eventual tenants of those units.

And we felt that was an area that we wanted to address. That's an area that we would

like to address more broadly outside of the Bay Area, perhaps statewide, perhaps nationally.

And if you go to www.nonprofithousing.org, you'll be able to see that with a certain number of units we can now predict how many parking spaces, or at least how many cars owned there will be as part of that development.

Future applications that we'd like to explore with the Energy Commission, and perhaps other state agencies like the Office of Planning and Research for Caltrans, including kind of using the indexes that we've been able to develop to address transit access, pedestrian access in a least cost transportation planning model.

We'd like to introduce energy consumption, water consumption and essentially get to an area where we have a variety of universal options whereby we can determine a combination that minimizes the net social cost.

Another idea that we've had is to require developers to implement smart growth designs, as Sandy was speaking about. If there is projected that the VMT will exceed a certain threshold we'd like to work with staff on that.

Another thing is that we'd like to kind

of tap into a separate fund, maybe yours, to kind of provide bonuses to developers if they are doing the kind of transit-oriented development, or implementing traffic calming measures that we would want to see.

So, that concludes my presentation. And I'm looking forward to the discussion later.

MR. STAMETS: Okay, thank you very much. Well, we have Pat, and then we can move to the discussion.

Pat Mokhtarian from UC Davis on attitudes towards travel and telecommuting.

DR. MOKHTARIAN: Thank you very much for the opportunity to speak this morning. I'm a Professor of Civil and Environmental Engineering at UC Davis, and a student of travel behavior for the last 25 years or so.

A lot of my career has focused on the travel-related impacts of telecommuting in particular, and telecommunications more broadly. So I'll focus my remarks today mostly on that, but also on some more recent research that I'm in the process of doing, looking at attitudes toward travel, itself.

I'm afraid I don't have any cut-and-

dried solutions to propose today, but rather more in the form of food for thought as you go about considering some of the other solutions that have been discussed.

I guess what I'm presenting might be along the lines of the listening stage that Ken Kurani talked about in his conceptual model of social marketing.

Next overhead. With respect to the first topic, the telecommunications impacts on travel, I can summarize my work and that of a lot of other people really in two sound bites.

One is the impact of telecommuting on travel is going to be small. And secondly, the overall impact of telecommunications more broadly on travel is most likely going to be to increase travel rather than to decrease it.

In the brief time available maybe I can give you some sense of a basis for these two conclusions.

Next overhead. Impacts of telecommuting on travel, in order to sort of think through what those might be, it's useful to consider a set of filters.

So, in rapid succession, I've done these

a line at a time, if you can give me the next line. Not everyone can telecommute, obviously not all jobs are well suited to it, and not all managers, at this stage, will allow people to telecommute, even when the job is suitable.

Next. Not everyone who can telecommute will want to telecommute. There's all kinds of reasons why not. Some prefer the social interaction of the workplace or the professional interaction. Others find value in the commute, itself, as I'll talk about a little bit more in a minute.

Some simply don't have a motivation to telecommute because their commute is not all that terrible, or they don't have young children at home that's an issue for them. In many cases they're concerned about visibility for promotion, and so on.

Next. Not everyone who can and wants to telecommute will actually do so. In some cases these and other considerations that I've mentioned will override what may be at least a weak desire to telecommute, but will not lead them to choose to do so.

Next. Even those who do telecommute,

study after study shows that they tend to do so about one day a week on average. So when you count the number of telecommuters, if you want to count the number of commutes reduced, you need to divide that at least by five, and probably by more.

Next. And many of those who do telecommute don't do so for very long. Again, evidence is somewhat sketchy on this, but the evidence we do have suggests that people who start telecommuting, about half of those will have stopped within nine to 12 months after starting.

Some will start again later. We don't really have a good sense of how patterns change over time, but it's quite clear that once a telecommuter, not always a telecommuter, is not the case at all.

Next line. All right, well, that's kind of a status quo for today, but don't we think it will get much better in the future with lots more people joining the telecommuting bandwagon over time.

Next slide. Well, to take the future into account, think about -- back up one -- for the reasons that I just mentioned that not

everybody does it for very long, yes, we'll have more people increasing their telecommuting engagement over time.

I personally believe that there is a large pent up demand for telecommuting that's currently not realized, and that many more people want to do so than are able to right now.

So, yes, we'll have a lot more people starting to telecommute in the future. But, as I mentioned, many of those who have already started will be stopping.

So I use the analogy of a big bucket where we're pouring new telecommuters into the top of the bucket, but there's a big hole in the bottom of the bucket, and they're leaking out the bottom. Not quite as fast as they're pouring in the top, but fast enough to make the net growth in telecommuting relatively modest and likely to remain so for some time to come.

And ultimately we'll reach a natural saturation point in terms of the proportion of people whose jobs are at all suited to telecommuting, who will want to, and choose to telecommute.

Even when we do increase the number of

people telecommuting, the per capital transportation savings are likely to diminish, because these early adopters of telecommuting that we're measuring now tend to be those with longer commutes than average, not surprisingly.

So, as telecommuting moves into the mainstream and more people adopt it, their average commutes will be shorter, and their per capita savings will be shorter.

And last but not least, we really don't have a good sense of the rebound effects associated with telecommuting, especially longer term effect such as residential relocation impacts. They may be fairly small, but they'll almost certainly erode at least some, and under a worst case scenario, virtually all of the savings that we encounter through reductions in commuting on a short-term basis.

Next slide. So, in my opinion, the bottomline for telecommuting is that it's probably not going to increase travel on net I'd like to be that optimistic at least.

And I also believe that it has a number of other benefits that justify its promotion as a public sector policy. But I do believe

realistically its transportation benefits are going to be small, and that we need to be realistic about that as we weave it into our planning.

On the other hand you can certainly argue that its benefits may be small, but large, relative to other transportation demand management strategies that we're also promoting.

So, in a relative sense it may be considered an effective strategy, even while in the absolute sense it won't buy us a whole lot.

Next slide. Moving to the impact of telecommunications more broadly on travel, I've spent a little bit of time going beyond telecommuting and looking at the bigger picture of what's available to us as a society in terms of telecommunications and information technology.

And my conclusions there is that the net impact of telecom on travel is almost certainly going to be stimulation, or complementarity, or increases in travel rather than decreases.

The reasons for that are at least threefold, the conceptual, theoretical and empirical. I think I'll buzz through those in the interests of time.

Going briefly to the conceptual one, the next overhead, please. Simply we are now more aware of more people, more activities, better information on more locations. That's going to stimulate the desire to visit those people at those locations.

At the same time telecommunications applications are increasing the efficiency of our travel, therefore making it easier to travel; reducing the dis-utility of travel for us. Making our current transportation system more efficient, and therefore more attractive.

Next overhead. The theoretical impacts, you can look at the income effect which will certainly favor more travel. The higher incomes will promote more travel.

The price effect is a little more complex. That is our prices of travel increasing and we've heard some evidence to that effect from Donna.

Depending on how you look at it, it may or may not be the case. And certainly the price of travel relative to telecommunications alternatives might be the most complex question to address.

If you have an alternative, and that alternative is a telecommunications one that's much cheaper than travel, then yes, most likely you'll choose that.

But on the other hand a lot of apparent telecommunications alternatives really don't offer a comparable experience to what you'd get from traveling and being at the location face-to-face.

And to the extent that's true, the increased costs of travel will justify itself in the increased utility or increased value of the experience to the traveler. And therefore, again will continue to promote the demand for travel.

Next overhead. And empirical evidence. Well, at first glance it's mixed. We have a lot of empirical studies, some of which I've done, myself, that show that in the short term telecommuting, for example, and even teleconferencing, reduces travel and looks to be exactly the kind of wonderful strategy that we all hoped it would be.

But when you broaden the scope to telecommunications in general, rather than just a single narrow application of telecommunications technology, when you look at the long term, and

when you look at aggregate levels of impacts, then the picture seems to shift and the evidence seems to favor again, overall generation or stimulation of more travel.

Next slide. So, my conclusion with respect to the empirical evidence is we -- there are still some open questions about the extent to which travel is actually caused by telecommunications, as opposed to just rising together with it as a consequence of income, economic indicators and other third-party factors that are causing both to increase.

But at the same time there's no evidence really on net that telecommunications currently is leading to a net reduction in travel.

So, that leaves us both with some research challenges, but particularly here today discussing the policy challenges. My suggestions are not just to focus on how telecommunications can be used to reduce travel, although certainly it's still valuable to explore that. There may certainly be applications and situations in which it can have a substantial impact, and we shouldn't neglect those.

But on the other hand we can also focus

on how telecommunications can be used to make the travel that we will be doing more efficient. It offers more flexibility; more choice to people in terms of, first of all, yes, whether to travel. But also where they travel, how they travel and when they travel.

So, we can take advantage of the flexibility offered by telecommunications to perhaps influence travel to shift to times and places where there might be excess capacity, or at least greater capacity in the transportation system.

Next overhead. Turning briefly to the current research that I'm involved in, this is looking at attitudes toward travel, itself. Our premise is that travel is desired, not just as a means to an end, which is what we've been drilling into all of our students for years and years, that the demand for travel is derived from the demand for spatially separate activities.

But, in point of fact, I think when most people look into their own hearts, they realize that to some extent travel is desired as an end in and of itself, not purely as a means to an end.

Now, obviously the extent to which

that's true is going to depend on personality and circumstances and may differ by mode and purpose. We're certainly finding all of those things. But I think it is a reality that we need to reckon with.

We've collected data from 1900 respondents in the Bay Area to help us examine these issues in more detail.

Next overhead. And just a very few of the findings that are emerging from this ongoing study include most people want to maintain or even increase their travel in most of the categories that we measured.

We also asked, you know, do you want to increase or decrease or keep the same, the amount of travel that you're doing now. And again, most people wanted to at least maintain it, if not increase it.

We also asked how they liked travel and stressed that we were emphasizing travel, itself, not the activities that they engaged in at the destination. And were relatively surprised at the level of liking that, again persisted across all the categories that we measured.

Yes, it varied by mode and purpose, but

even categories of travel that we would consider chores, such as grocery shopping, were liked by as much as 25 percent of the sample.

Moving on quickly, and there's more details available on everything I've said today, so if anyone's interested I can load you with papers and so on.

But we asked people what their ideal commute time was, and it was not zero minutes, as might be expected if travel were purely a means to an end. But 16 minutes, on average.

And we also found that most people are within -- their current commutes are within five minutes of their ideal commute, which suggests to me that they're not going to be terribly receptive to reducing their commutes. So that was true for 42 percent of the sample.

And for a small, but interesting, 7 percent of the sample their ideal commute time was longer than their current commute. Not surprisingly, those tended to be people with short commutes, but it does suggest to me that it's possible not to commute long enough. And that again there will be some motivation in those people to actually increase their commutes over

time.

We've also done models of vehicle miles traveled; modeling it as a function not only of the traditional demographic variables such as income and household size and auto ownership, but including in some of the personality and attitudes toward travel variables that we've collected data on in this study.

And again found fairly astonishing, to me, results in terms of the impact of these personality and attitude variables on vehicle miles traveled.

And I can give you one sound bite that's not up there on the slide. We measured adventure seeking, for example, as a personality trait. And someone who's adventure seeking score is one standard deviation above the average traveled 88 percent more miles for work-related travel, long-distance, work-related travel than someone with an average score on an adventure seeking scale.

This is a mandatory trip purpose, you know, this is not, you know, entertainment. This is work-related travel. So it suggests to me that people are actively seeking occupations and assignments that will allow them to fulfill their

desire to travel in that respect.

Next and last slide. Again, we've got a research challenge on our end to try to understand all of this better, and again, understand better the circumstances under which this desire to travel is strongest.

But I would suggest at the policy level that these results and similar ones may help explain why people tend to be resistant to policies getting them to reduce travel.

And that we, as we move ahead, need to consider how to balance this strong and probably universal innate need to travel, and people's high value that they assign to traveling, how to balance that properly against the need to conserve our scarce resources.

Thank you.

MR. STAMETS: Thank you. Well, we had a lot of interesting concepts and information and I appreciate --

(Applause.)

MR. STAMETS: And we've used most of our time, but if there -- probably have time for maybe one or two questions or comments.

Would you state your name and so forth?

MS. PFEFFER: I shall. Good morning, my name is Nancy Pfeffer. I'm a Planner at the Southern California Association of Governments.

I just wanted to make a couple of comments. We've participated in the CEC smart growth survey for MPOs that Mike talked about. And Sandra, I think it was, mentioned something very interesting about water quality.

You, I think you gave a figure of $6 billion statewide, and I don't know for what time period that is, to meet some of the water quality requirements that are facing us. And perhaps that's just focused on transportation, I don't know.

But I just wanted to echo and even amplify that with some data that we are working with from Caltrans. They've done a study looking at the cost of implementing storm water treatment regulations, including permit requirements, basically all of the Clean Water Act requirements, total maximum daily loads.

Just for the L.A. area they're looking over the next 20 years at a total, they've estimated over $50 billion. So I do want to emphasize or just kind of add that statistic to

what you had mentioned, too, to confirm that these are really some very huge expenditures that are facing us as we go forward.

Caltrans also had commissioned a study of fiscal capacity, basically borrowing or fiscal capacity just within that region to come up with some of that $50 billion. And found that basically the lending or borrowing capacity of municipal governments in that area would only cover about 10 percent of the capital costs needed over that time.

So, we really do have some very big challenges. And looking at how we regulate water quality, but also how it relates to road paving, transportation, obviously there are many sources.

I just want to also say, speaking for myself personally, I do really appreciate the leadership shown by the Planning Conservation League, NRDC with some of the wonderful policy proposals you've made here today. I thought it was very interesting.

Thank you.

MR. POWARS: I'm Charles Powars with the Research Partnership. I have a short question for Professor Mokhtarian.

My question is if there's been any studies of the effect on VMT of people who actually do telecommute, and particular I've heard rumors that when that's examined people are more prone when they're telecommuting to run little errands during the day, such as purchasing a new printer cartridge, and personal errands as well. And when that's subtracted from their telecommute distance, the effect on VMT is not as great as we wish it was.

And since I don't like to pass along rumors, I'd like to know if there's any facts in that regard.

DR. MOKHTARIAN: Well, that's one which is based -- I feel pretty comfortable about right now that it's not happening. We've done, again me personally, and several other, you know, people in other places in the world even, have done studies of, you know, looking at telecommuters on days that they telecommute versus days that they don't. And comparing them to non telecommuting control group people.

And looking specifically at this question of are non work trips being generated, or additional trips being generated. Some studies

will find a tiny increment of new trips. And others will find none, or even less, suggesting that they're becoming more efficient at consolidating their travel in other ways.

So, bottomline, I think we're seeing random fluctuations around basically zero. And my sense is that the short-term information that we have is telling us that non work travel is not increasing substantially for these telecommuters on days that they're telecommuting.

But, again, I've come to feel, myself, that that short-term information needs to be placed in context of sort of the broader picture. And we may be seeing savings at the margin, but expansions in the aggregate that are outweighing those, that we're not capturing with these short-term studies.

MR. POWARS: Thank you.

MR. DULEEP: I wanted to raise a point from Ms. Donna Liu's study. I think the --

MR. FONG: Can you identify yourself, please?

MR. DULEEP: Oh, I'm sorry, I'm K.G. Duleep of Energy and Environmental Analysis. I think the curve you showed that the R square at

the .9 suffers from a very severe multicolinearity problem because obviously the people who live in very dense urban locations are not the same people who are living, you know, not the same kinds of people.

We did a study that controlled for a demographic and household size and income and found that, in fact, most of the variations in trip making disappear if you control for all the other activities. Although the trip length seems to be longer if you live out in suburbia or exurbia.

And I think Professor Mokhtarian's analysis also shows that you're not really going to change people's trip making by moving them into a different kind of living situation.

So perhaps if you temper the analysis with these types of observations the savings may not be very large.

MS. LIU: We actually did control for household income, household size and stage of life. And the data points that we used extended to all households that included Solano, Napa and Sonoma Counties, the more rural areas.

So I would be interested in looking at

your study.

(Laughter.)

MR. DULEEP: It's a very large sample across the nation. And those show that once you control for that, the trip making doesn't really -- the number of trips you make per day doesn't really change that much.

MS. LIU: Did you look at the VMT aggregates?

MR. DULEEP: The VMT, also, but the VMT does increase as you go out, but the number of trips, they're shorter trips, but you make the same number almost, if you're the same kind of person.

MR. STAMETS: Any more questions?

MR. FONG: I have a question for Ken Kurani. I think we understand the value of providing consumers with good information so that they can make informed decisions on the transportation source choices.

But the consumer already probably is faced with a whole menu of different sources of information in the print and other mass media. And it's not always a consistent or purposeful message to make energy efficient choices.

How do we -- or do you have concepts about insuring that the consumer does recognize that it's important from an energy standpoint when they do make their travel decisions?

Because it seems like they are inundated with other kinds of messages, to either, you know, buy or use vehicles that go more toward the hedonistic aspects of travel.

DR. KURANI: How -- make efficiency hedonistic. People do face a barrage of information, and part of what you're trying to do with a marketing campaign is target your message at people who are inclined to listen.

Provide it through a variety of media and with the variety of messages that helps it cut through other things.

There are a number of sort of very basic things we know about vehicles, for example, that aren't part of the general public's knowledge. People don't know that by policy trucks are allowed to be less efficient than cars. It's about to change in California, but trucks have been allowed to be dirtier per mile than cars. And we don't know when it's going to change at a federal level.

We've talked to people who didn't know these things, and when they found them out after buying their truck, were really quite upset. So certain amounts of basic information about existing policy settings and about existing programs that is not given out to people.

For all the hard work we did around ZEVs over the last decade, I think that a real marketing campaign to bring the public along with us as to why we are doing this, why this is important to the State of California, why it's important to them as residents to make choices about where they live and what vehicles they buy, I don't really think we did a good job of that.

The marketing approach, it's a little, as an academic I'm sort of clearly positioned in the research parts of that, the listening, the pretest, the monitoring. I'm not an expert on the planning and the structuring and the implementation side of that.

We have tried to pull together a wide variety of public agencies, industry representatives, academics, market research professionals to begin to talk about this issue, about how do we do this.

ITS hosted a conference workshop on this past March. There is a group, a loose affiliation of folks who are meeting on a irregular basis, folks from federal agencies, state agencies, again, some of the automobile manufacturers, academics, market research professionals. We're trying to talk about how to proceed, and can we proceed in a way in which all these partners come together and do their piece.

Agencies engage in education programs with the public about why these things are important. Industry advertises, develops and advertises products that address what was hopefully a demand that we are creating for clean and efficient vehicles.

Academics provide background research. Market research professionals help us design messages that get through.

I think it will take that sort of multipartner effort, sustained over a very long period of time, to make efficiency important; and to make the types of products and practices that could make travel more efficient available to us.

MR. FONG: I have a follow-on question for the entire panel. One of the challenges that

we seem to have in this particular area is measuring the results of a variety of these types of measures to either change consumer behavior or have consumers make improved societal choices.

What options do we have to actually make those kinds of measurements and what might be needed to, you know, actually accomplish that kind of information gathering?

MR. McKEEVER: Well, are you talking about information to the consumer or information to policy makers who are setting --

MR. FONG: For policy makers.

MR. McKEEVER: Well, in the topic that we're talking about here today I think clearly the dominant information tool are the travel models that are most MPOs have, not all MPOs even have travel models at all in California. So they're making transportation investment decisions with no idea what the effect will be. So improving that tool and getting the information out I think is important.

I'm sure, as you know, the Energy Commission has sponsored for a number of years the development of a decision making tool called Places, which is designed to give people from a

regional to a city to a neighborhood scale, a way to estimate the impacts of different development decisions in land use patterns on VMT and transit boardings and air quality and what not.

And that's an attempt by the Commission, I think, to bring technical information straight into the day-to-day decision making process of land use.

And there's, you know, there's -- it's your turn.

(Laughter.)

MS. SPELLISCY: Well, this is not something that our organization, you know, has very much expertise in, but I think again there are some things that I agree with you that we need more information on because, you know, you want to be able to pick and choose among policy options. And you want the best information you can get on what the actual effects will be.

But I wouldn't allow our policy making to be paralyzed by not enough information or an information overload, or whatever, because I think that there are some areas where the future is clear if we don't act in a particular way. And I think, you know, for transportation infrastructure

funding is one of those areas where the funding shortfall is so clear that we know what the future looks like if we don't act.

You know, taking action is our only option for changing that future. So I guess I would just say that, you know, I think that kind of information is important, but I also wouldn't want it to paralyze making, you know, some policy decisions because we don't think we know enough about, you know, measuring effects.

MS. LIU: I want to add onto that. I think part of making quality decisions is the ability to look at what kind of information has already been gathered, what kind of modeling has already taken place.

And kind of re-examining the way transportation funding has gone on in the state, whereby it's actually funds are distributed based on perceived need. And demand, actually.

And when we look at funding projects for something like that, we're only kind of fueling what I think a lot of us here are talking about, fueling the idea that we are accommodating consumers when they want to have the choice of low density, sprawled out kind of housing.

But instead I think we can now kind of help to adjust consumer behavior by implementing better urban design.

And I realize that a lot of us feel paralyzed because of the state. The state does not have local controls on development. However, I think the state can encourage incentives to provide those local policy makers -- well, give them some more ideas as to how they may want to develop their own cities.

DR. MOKHTARIAN: Can I just add, again, as being in the research business we're always in favor of more information. And a lot can be done in terms of understanding better the things I and the other speakers were talking about.

Obviously, telecommuting is one issue if we do want to pursue it seriously as a strategy. As you know, we're doing a project for the CEC right now, looking at the impacts of VMT on -- of telecommuting on VMT at the aggregate level, and we're using nationwide data because we don't have a clue how much telecommuting is going on in California alone.

So, just monitoring how much, and changes over time, and pure descriptive

information is useful.

On the subject of land use, a the gentleman who made a comment implied, I've also done a little work on that, as well. And my concern there is that we understand better what people's residential preferences are, unless we are starting a wholesale policy of you will live here whether you like it or not.

You know, people will still have a choice and will vote with their pocketbook if the options given to them are not appealing.

I fully believe that there, again, is a pent up demand for these more attractive, higher density pedestrian oriented mixed use developments that we don't have enough of.

The question in my mind is how much is that demand. And I haven't really seen any good sort of forecast of market segments in that respect.

And I'm also concerned that even if we did plop people down in the middle of these high density developments, if that's not their desire or orientation to start with, whether we'd see matching behavior from the behavior that we're seeing with those who self select themselves into

those developments because they like them.

So that's sort of my concern, that we not extrapolate too much from current comparisons between people living in such areas, and people living in low density areas, because those are different kinds of people. Again, they've self selected the areas that fit their predispositions.

MR. FONG: Let's take one more question.

MR. OVSHINSKY: I don't think I need a mike, do I?

SPEAKER: Yes.

MR. OVSHINSKY: I'm Ben Ovshinsky from Energy Conversion Devices. And in a purely personal capacity I'd like to address that I think the emphasis is misplaced on policy makers and consumer behavior and the need for information.

It's real enough, but there's probably more driving factor where the real policy is made with the real pocketbooks is the guys that can make the decisions that economically affect tremendous amounts of consumer behavior.

I'm thinking for example the light rail system that's gone into the San Jose area must be quite an investment. I'm guessing a billion dollars plus. It's probably a fairly sunk

investment now, because probably -- I haven't done the research -- but probably along that corridor they've probably lost 20,000 to 30,000 jobs in the last 12 months.

And no by any consumer making decisions affecting their economic livelihood, but by powers that be that control that.

The relocation of corporate headquarters from San Francisco to other places, even bypassing the BART, bypassing Walnut Creek and going out to San Ramon, Danville, et cetera.

There are very few people make those decisions that affect hundreds of thousands of people. Just a point. And I don't think too rhetorical.

MR. FONG: Is there a response, if there was a question there? If not, we're going to take a break for ten minutes, and resume at 10:30. Thank you.

(Brief recess.)

MR. FONG: Thank you.

MR. CACKETTE: Good morning; my name is Tom Cackette; I'm from the Air Resources Board, and I'm chairing this session, which is the fifth panel, on policy incentives, goals and mandates.

And at least it's my objective here, after we hear the presentations, to attempt to stimulate a pretty good discussion of what is the kind of potential outcomes of this report preparation that various people would expect to see at the end of January.

And I don't want to suggest that we have all the answers, we being all the people in this room. But I think it's important to take a lot of this information and try to get some sense from the various stakeholders as what they might expect to see. And that will certainly help the CEC and the ARB in terms of putting this overall program together.

I've asked -- go to the next slide -- I've asked the speakers to try to address the following questions. And they may or may not, but they won't get away with it if they don't. So, I hope they'll look at this.

The specific questions we've asked them to address are what policy goals should be adopted for reduced petroleum use and increased use of non petroleum fuels. That's basically what the Legislature has told us to do.

And we're interested in whether specific

policy goals should be included in this report of what should they be.

As sort of subsets of that, broken it down and asked the speakers to address whether there are non monetary incentives that would be effective in achieving these goals. And if so, this is often the path of least resistance, are these in any way sufficient to meet the goals.

Next one is are regulatory mandates effective in this case; and if so, what should they be.

Next slide. And finally, are monetary incentives needed. And these are not all -- these can be combined or can be mutually exclusive. But if they are, specifically, you know, how much, what type, how do you fund them, and for how long.

Because sometimes it's easy to say well, we'd love to give incentives, but then when you go and look at how many dollars it takes to achieve a certain objective, it can often exceed even our wildest expectations in previously good economic times.

So we need to be pragmatic about whether each of these various types of incentives, mandates, policies are realistic or not. And that

will help -- your opinions on that will help us shape the form and the ultimate recommendations of this report.

So with that, I'd like to introduce John White. John is, correct me if wrong, but I think the father of this bill -- he's the author --

(Laughter.)

MR. CACKETTE: But he helped, let's put it that way. And I helped. So, John, we asked John to be the first speaker because I know he has a strong interest in this area, and also because I think he helped pen some of the words that have put the Energy Commission and ourselves on the path of writing this report and inviting all of you to this workshop.

So, John.

MR. WHITE: Thank you, Tom. I came to this issue most recently through my service on the Attorney General's task force on gasoline pricing and competition, which was appointed, convened by the Attorney General in the aftermath of the price spikes and volatility that occurred in the gasoline market a couple years ago.

And that investigation centered a lot on the machinations between the petroleum refiners

and their jobbers and the dealers and there was a whole lot of discussion about lack of competition and market power, which I won't go into here.

Other than to say that Roland Hwang served with me on it, and one of the things occurred to us is that in addition to the Attorney General's purpose of investigating causes and people taking advantage, windfall profits, that whole discussion, that maybe the better question for the panel to take a look at is what were we facing ten years out.

That was a period that we thought we might be able to do something about from the standpoint of the state's dependence and vulnerability.

A number of other ideas were discussed at the task force, including the building of a pipeline from Texas to move crude -- excuse me, refined products here. There was talk about a strategic gasoline reserve.

And when you actually got through the list there really wasn't a lot that seemed to be able to be done short term. And there was sort of, in the end, I think, a sense among some folks, gee, there's nothing that you can do, just, you

know, just live with it, this is part of our situation.

And the other thing is I would say that people in California tend to sort of take this issue for granted until the time of crisis. It's part sustained policy and public interest in the issue of transportation fuel dependence when it isn't in the headlines.

And I think there's also a terrific amount of inertia in the system. We are governed by an oligopoly with respect to the ownership of this industry in California. And they have a lot of power, and they intend to keep that power, from all indications.

So, I think what I view the legislative intent of the bill was to address with a little bit of perspective, what the state could do about its dependence on petroleum and particularly fostering increases in efficiency in the transportation sector, and increased use of alternative fuels.

If you look at where we will be in 2010, I'm sure there's been some Powerpoint presentations and slides yesterday about addressing this issue of the continually rising

demand for petroleum products in this state, and the increasing constraints on the supply, or the imbalance.

And therefore, I think, let's just assume that there is a graph that's going to show a widening gap between demand and available supply.

Now, there's possible talk of building refineries in Mexico and eliminating environmental laws that interfere with refineries being expanded or built. I don't think any of that's going to happen at the moment. And even if it did, it would still not address the issue of where we're going to be in 2010, and what can we do about it, other than try to manage a steady increase in the volatility in the price.

And I think the central task is really to accelerate the investment in the things that will be needed to respond to that before the crisis is here.

We also are facing potentially a crisis as soon as next year, or the year after, as we phase out MTBE and begin to get a little flavor of the market power that our friends in the ethanol community may be able to exercise over the State

of California.

So we potentially have two sources of volatility in the gasoline market, the embedded power of the demand and supply curve; and then the new element introduced by the oxygen waiver not being removed and the growing role that ethanol is going to play in our fuel supply.

At the moment I think that what I'm hoping personally, can't speak for Mr. Schell, other than the fact that he wrote the bill, as Roland and I pretty much recommended, and seemed eager to have something to talk about other than a gasoline reserve, which as that idea has gotten more attention it seems to have less momentum towards action, given, I think, the problem with gasoline tends to go bad after awhile. And it's sort of not quite the same as petroleum. But that may still be a useful idea.

But clearly, the state has a growing vulnerability. Clearly the state has significant life cycle environmental costs associated with petroleum.

Not everyone in the state cares about where our petroleum comes from. But those of you that know what the impacts it's had in Alaska and

know that the potential exists for similar impacts in South America in disrupting native peoples, know that there are consequences, even to the production of crude, not to mention when it gets here and has its effect on the environment.

So in terms of what options we should be -- what policies we should be pursuing, I think the first step is to recognize that the days when the state can afford to have a policy, an unofficial policy that I don't believe the Legislature has ever enacted, but has become sort of a mantra from some of our friends in the petroleum industry and some of the other business groups, the policy of being fuel neutral, I think, needs to be set aside.

There is no danger of gasoline losing significant market share. We're really talking about who is going to get the growth. And I think one of the logical goals is to try to address a portion of the state's demand for petroleum growth being met by efficiency and alternatives, as an explicit goal. I don't know how much, but I think we ought to have a goal.

Second, I think we need to embed the analysis of life cycle costs of petroleum and its

alternatives, including efficiency, throughout our agency regulatory process, and think about it all the time.

I think life cycle costs are an important way, particularly in the aftermath of MTBE, to look at this issue of multimedia impacts of petroleum, as well as any alternatives that may be developed.

Related to the establishment of a goal for displacement and increased efficiency I think should be a notion of the sustained orderly development of alternative fuels within the state. In the same way that we have attempted to pursue a policy of sustained orderly development of renewable resources in the state.

And that means setting goals, setting targets, doing analysis, working on infrastructure, particularly for fuel cells, but also thinking more consciously about how to get hybrids more broadly distributed throughout the automotive fleet.

There's absolutely no reason in my mind why the automakers should be waiting to move hybrids up the stream and into the SUVs. It's their business interest, it seems to me. It's

just that they'd like to delay the investments as long as they can.

I think one of the goals of state policy ought to be, through incentives or through other means, to accelerate that broadening of hybrid technologies so that instead of just a little Prius or an Insight that we can have them in a Camry, we can have them in the Lexus 300, we can have them in the SUVs soon, not later.

And related to that, I think it's time for the state to have a CO2 policy for transportation. Assemblymember Pavley has legislation pending before the full State Assembly, AB-1058, which would direct the ARB to set emission standards for CO2 from vehicles. We think that bill's going to be passed next year. We're going to work very hard on it.

But the reason for it is that California is actually doing a pretty good job in meeting global warming objectives throughout the other sectors of its economy. Through voluntary actions of companies, industrial companies, state agencies, the Governor's push for energy efficiency. We're doing pretty good on global warming from all the sectors except

transportation.

And so I think there's a certain convergence between the goal of petroleum dependence and reducing CO2 emissions that can be addressed through regulatory actions on the automakers, and through a conscious state policy that sets some goals for increasing efficiency of the vehicle fleet, and also for the orderly development of alternative fuels, including an infrastructure plan for alternative fuels like CNG, methanol, hydrogen and ethanol, all in their proper place, all based on some kind of life cycle cost.

In terms of the funding I actually think it's time to consider something that's been discussed in the solid waste area. It's called an advanced disposal fee that goes into packaging. When you buy the product, the cost of disposal is included. And I think we need to develop a similar concept for the cost of petroleum and build it in perhaps with a surcharge on crude, as was proposed -- actually as is in place for the oil spill prevention.

We could levy a fee that would relate to mitigation and protection against increased costs

in this fashion. Create a substantial sum of funding to provide incentives and help with the transition.

If that's not appropriate, we're in a difficult general fund state at the moment, but we need to think about building the costs into the product somehow, in ways that can be acceptable to consumers.

This is going to take a little more political vision and leadership than we may have at the precise moment, but I think as we enter a period where we're all going to become more acutely aware of our national security and vulnerabilities on fuels, that California needs to have its own strategy for its transportation energy vulnerabilities to minimize the impact on the environment, but also to accelerate the transition to new, more sustainable technologies.

And so those would be among the suggestions that I would offer. And also I'd suggest that the agencies have a lot to gain by working together.

This study could have easily been done by the Air Resources Board given its proximity to the world of automotive transport technology and

the ZEV mandate. I'm grateful for the degree of cooperation that the agencies have shown.

The Energy Commission, in the past, has had distinguished leadership of national significance on alternative fuels and policies. It's been quiet on this front for some time. It's been off, in my opinion, on some distractions. I think it needs to return to the central set of issues. Use all the experience and history that it has, and use the expertise of its colleagues at the Air Resources Board and air districts and other places.

Thank you.

MR. CACKETTE: Okay, thank you, John. We were unable to get someone to commit from the Department of Energy to come out and talk about federal programs. And so probably if we had they might not have been able to make it anyway. So we are missing that person and that perspective today.

Our next speaker is Dave Smith from BP, formerly known as ARCO. And --

SPEAKER: Still known as ARCO.

MR. CACKETTE: -- still known as ARCO, I guess, okay. It says BP here, so I had to get

that on the record.

He's going to give us an industry perspective on petroleum dependence.

MR. SMITH: Okay, thank you. Why don't we go ahead to the next slide.

The first couple slides of my presentation are kind of obligatory since I'm a petroleum employee, so you'll just have to bear with me on this.

(Laughter.)

MR. SMITH: As the 2076 report comes out I'd encourage the agencies to consider the benefits of petroleum dependency that we find ourselves in.

Certainly I think I can speak for our industry fairly -- with a sense of pride, that we do provide a dependable supply of tightly regulated products to myriads of customers and varied products.

We produce products in California that are, if not the cleanest, some of the cleanest burning products in the world. And, in fact, those products are going to be getting cleaner. And with the aid from auto and engine manufacturers, significantly so.

So, I think I would encourage agencies to make sure that as they look at reducing dependency, whatever that exactly means, that they look at the potential risk and costs associated with that.

And I'm not saying that the agencies won't do that. In one of their last reports on the strategic petroleum reserve they noted that one of the costs of a strategic petroleum reserve would be the cost of refilling the reserve once it's used to deal with an emergency. And that cost could actually increase prices to consumers.

And when they put out, looked at the whole cost to consumers, at least the last time they looked at this, they concluded that it wasn't really an economic benefit to the California consumers to have a strategic petroleum reserve.

And as you probably know, they're redoing that study and may come up with the same conclusion, or differently.

The next slide is an advertisement for BP. I think you could probably do this for many of the other oil companies. Obviously we're certainly involved in conventional fuels, but at the same time we are providing fuels ahead of

regulatory requirements.

Our company provides low sulfur fuels to over 60 cities worldwide. We have significant capital plans to continue investing in our refineries over the next several years to increase production of cleaner fuels.

We do support the elimination of MTBE in California gasoline. And our company is committed to try to phase out MTBE earlier than required, as well as some of the other oil companies.

We're a large producer of natural gas. In fact, we may be the largest. I think the last time I heard we are the largest producer of natural gas in North America. And sometimes when we speak about petroleum fuels and alternative fuels, somehow or other natural gas falls into alternative fuels. And I'm not quite sure how that happens, but certainly natural gas comes from many of the same wells that we get crude oil from. And so I'd like to suggest that natural gas is certainly a petroleum fuel.

We're the largest producer of solar cells, and also the largest user. We belong to numerous fuel cell partnerships. California partnership, as well as individual partnerships

with automakers and other technology companies.

We have our own internal global climate change goals. We have gas-to-liquid demonstration programs. ARCO and then BP has been involved in introduction of reformulated gasoline and diesel in California ahead of rules. EC-1 in the early 1990s, and ECD, which is our low sulfur diesel fuel, was introduced commercially here a couple years ago in southern California.

And I think our chairman and CEO has said that, you know, BP is going to be a provider of future energy sources, whether it's hydrogen, CNG, reformulated fuels. And we suspect it will be all of those.

Next slide. We, as a company, support -- and many of these things are probably things that you could probably have written down, yourself, but we do support diversity of supply in the transportation sector. We've seen the slides where it talks about how so much of the energy for transportation is petroleum based. And will probably still be.

But we do support diversity. And we think that's shown in our investment in some of solar and other of these renewable energy sources.

The question of goals is an interesting one. We really haven't talked about it too much, about when we've had various panels up here. And one of the things I was cautioned by my management when I agreed to come here, was not to establishing any new policies, BP policies, by my presentation.

(Laughter.)

MR. SMITH: So, if any of you guys tell my management I'm going to be in trouble.

But, I think, you know, if you look at 2076, it recognized that realistically our ability to reduce the dependence on petroleum products, you know, it has to be a realistic assessment. And they said, you know, look at restoring the rate of growth in the use of petroleum fuels. And maybe that's where we should start.

We should have short-term goals and long-term goals. And maybe we should, like with the electricity, we should focus on conservation and supply, maybe, imports are very important. And also alternative fuels.

And so maybe we should have a further discussion about how we can do that. And whether or not we can actually try to have a goal of maybe

trying to meet the 2 percent increase in petroleum growth through those kind of combination of, you know, whether it's imports, conservation, alternative fuels.

I've heard a lot that, you know, we have to move quickly. We're tired of waiting. And certainly I agree we should move expeditiously. But we've seen examples, and I've listed a few up there, where we have moved expeditiously and we've had some problems.

But we've learned things from that. But I'm not sure that we've always captured what we learned from those things.

ARCO was very much involved with M-85. We had 15 M-85 stations. When we ultimately closed some of those stations some of the fuel that was in there was original fuel that we put in there.

By the time we closed we were transferring fuel from one station to another trying to use it up so we didn't have to dispose of it.

The GM diesel, I'm sorry for our friends back in GM. My father, I have a very soft place for GM, my whole family works for GM. I worked

for GM as a student at Michigan State. He was in charge of rebating money to people who had bought an Oldsmobile diesel back, I don't know when, back in the early '70s or so. '75?

And then, of course, the ZEV mandate. That's been an interesting situation. I think we should really have a discussion about what the ZEV mandate has done for us. And where we are now, after all this time.

And also the amount of money that's been spent on this. It would be interesting to have that kind of discussion here. I don't know what the answers are.

I think there's a perception that if you establish these really far-reaching regulatory standards, that we, as an industry, or other industries, will move towards that. The question is whether or not we would have moved there anyway.

And as a result of now maybe thinking, I've heard previously about hydrogen fuel cells, which we think are very promising for the future, and maybe that that's the ultimate goal, when at one point in time ZEV seemed to be the ultimate goal.

And so those kind of things need to be discussed. And what happens when regulations pick winners and losers. So, okay, this is a technology we're going to put a lot of weight on, as compared to letting the free market try to work its way through these kind of things.

Obviously energy and environmental policies have to be aligned. We support that. And to the extent that CEC and ARB, like John was saying, work together, this is great. And I'm not saying they've haven't; in fact, they have. And we just applaud that and continue to ask for that coordination.

The fact that the South Coast, through Paul Wuebben, has been working on this is even better.

So I think that these are all very good, and certainly all three agencies have a lot of input to these kind of things. And am glad that these kind of conferences are held.

I didn't know exactly where to put this, but obviously conservation is important to this on petroleum use, and other fuels, whatever you want to call it. And we heard comments about how that agencies, the government is when the price of

products go up, there's an effort to reduce those prices.

And obviously those have impact on demand and consumer response. And I can't sit here as an oil company representative and say we want higher, you know, want to take governmental action to increase prices.

But it's interesting that we have government agencies working to keep prices low. At the other time we have specific data that shows that as, you know, people's use of fuel or any consumer item, is highly dependent on the price. So, I mean there needs to be some thinking about that.

And the CAFE standards, you know, I came into this conference with some perceptions of what the CAFE standards were, and what the auto industry should do about this. And I think I've changed my mind on that.

You know, it seems like it's simple enough, they've got the CAFE standards, why don't we just increase them. And we've certainly got vehicles in Europe and other places that meet the higher standards. But I've heard the General Motors people and the Alliance people talk, and

maybe there is a place for the free market to work in this case.

The auto industry seems to be selling us that, you know, let the free market work. We're going to provide higher efficiency vehicles. Maybe we should talk about that more with them. And say, okay, what can you do over the next couple years. What can you do deliver to California in a sense of higher efficiency vehicles. And see if they deliver. And if it's not, then maybe this is -- then there may be other options to take.

But certainly BP and I'm sure most oil companies support the free market system. Supply and demand are best managed through free competitive markets and private sector initiatives.

In fact, you know, there's been talk about that we're going to be short of petroleum products. And we're going to have to start importing products into the state. Well, we have been doing that and likely will have to increase that.

When I've talked to our supply people about that, you know, they've raised some

interesting ideas. When they have looked out as to supply points outside of California recently they've been finding new sources of CARB fuels, or carb lighting materials that they weren't aware of before.

And they also tell me that as they establish these import markets, that there will likely be more producers come into the market and they'll also be able to establish more regular deliveries of products for imports that could very well help us deal with some of these short-term demands.

So, you know, imports may not be all that bad. There's lots of places that import all their products. And we should be looking at that in a positive way.

And, finally, governmental intervention, for example the strategic petroleum reserve. We really would like to see it only be where we really have a market failing, where there's really a significant problem.

Things like the strategic petroleum reserve, or other things shouldn't really be used to control prices.

We've found that the CEC and ARB has

been very helpful when we've had price disruption or production disruptions, for whatever reason, quite often the Energy Commission's position will be let the free market work. The market will respond. It'll take a few days, maybe a few weeks, but we'll get there.

They're also ready to act if, in fact, we can't. In some cases we just can't be there. We haven't had that situation over the last many years, but there may be situations where we can't act, just because of the situation that we're involved with. And in those cases I've seen the CEC and the ARB prepared to act in case we couldn't, if the free market couldn't respond to the situation we were dealing with. And I congratulate them on that, and I think that we can continue doing that.

Next page. Obviously we support stable fiscal and regulatory policies. John was talking about fuel neutrality, and how that kind of had to go away. Obviously I'm still, I guess after my 30 years in the industry I'm still supportive of fuel neutrality. I like performance based standards. I don't like mandates.

And our industry has stepped forward and

supported things where maybe some people would be surprised that we would. The ARB's urban bus rule, we supported that as a way of -- as a balancing of mandating and free choice. But the urban bus rule that ARB, gave transit buses operators a choice, whether or not to go a diesel path or an alternative fuel path.

And I think as it turned out there was like a 60/40 split as to how the industry went. And I think those kind of approaches are very useful for us, rather than mandating situations.

Obviously creating a predictable operating and investment environment for energy supplies is important. You've heard all this before. We need time to plan. We need time to make the investments. And importantly to our stockholders, we need time to recoup our investments and make some -- recover our investments.

And we certainly have seen this through ARB and their action on CARB diesel where they acted in the early '90s. We were required to produce it in '93. And I don't know if anyone would absolutely agree with me, but there were agreements with ARB that we would go along and do

this as long as they gave us enough time to recover our investments before they started requiring additional changes to the fuel. And I think they did that and we appreciate that.

Finally, governmental incentives and subsidies. There are examples where BP and even our industry has supported subsidies and incentives. One of them obviously is the Carl Moyer program. You've heard many times that this has been a very successful program.

The school bus funding program that we've seen in the last couple years. We've supported that. Where there's been a balanced expenditure of funds and not just a one single choice; allowing schools to have a choice between cleaner diesel buses and cleaner alternative fuel buses.

But, you know, we really maybe need to spend some time talking about why those kind of programs have been successful, and why other programs have not been successful.

Because I think you'd be surprised, I don't have the data with me, but there are a lot of subsidies and incentives already in existence for alternative fuels.

And it might be helpful to include those in the report, as to all the incentives that already exist. But apparently they're not resulting in the kind of response that we've necessarily measured with the Carl Moyer or the school bus program. So that may be worthwhile to spend some time at.

And certainly the funding of these subsidies, currently most of these funds are being funded through general fund allocations. Our company has been supportive of alternative approaches. PCL supported an initiative sometime ago. ARCO, at the time, supported that initiative that would have come up with additional funds for incentives and subsidies.

There was even a time a few years ago where oil companies were considering the idea of additional taxes or fees on our products to provide subsidies for these kind of materials. And at that point in time the state government wasn't ready to do that. Even though, at least the oil companies, at least my oil company, at the time, was sending some messages that we might be open to that, the state government was not.

Next page. Some of these you've already

heard before. I'll go over these quickly. We would always, we always encourage streamlining permitting processes. Our company is very specific on this. We don't want any environmental backsliding, but we do think there could be efforts made to streamline processes when we do have to make changes or when we're looking at changing fuel sources, or whatever.

It may be appropriate to look at past permitting activities and how long it took us to do this. We're currently going through permitting of CARB phase III processes in changes to our refineries.

It would be interesting for us to make a study of how long that has been taking our companies to do, even with efforts by the agencies to expedite it. I think you'd be surprised at how long that's been taking us.

And certainly as we look to future fuels, whether it's hydrogen or CNG, you know, there needs to be, and I know there's work going on, but maybe the state needs to take a role in setting up building codes or whatever so these future fuels, the infrastructures and dispensing facilities can be more quickly installed and try

to help to expedite these things.

You've probably heard the issue of the many oil companies and BP, in particular, has been supporting the idea of reducing the number of boutique fuels across the country. There's well over 20 different types of gasolines that we produce in the summertime throughout the United States.

And our industry, and BP in particular, has come forth with proposals as a way of reducing that to as many as -- as few as four, in some cases five different fuels. One of those fuels, obviously, is CARB gasoline.

But that would help our industry, help facilitate the distribution and making the products more efficiently. And we would encourage the avoiding of new boutique diesel fuels.

And with all due respect to some of the other panel members, we'd like to see global climate change addressed on a national level as compared to on a state level.

And finally, with regard to the federal oxygenate mandate, while -- I have to read this so I don't upset too many people -- we do have a need to maintain the ongoing support for renewable

oxygenate, but we would like to see the elimination of the current federal oxygenate mandate on a national basis.

We've been supportive of California efforts to get rid of the oxygenate mandate here, but we really think the solution is going to be a national one.

And at the same time, while trying to deal with the ethanol folks, we'd like to see greater flexibility through a national banking and trading program and elimination of minimum oxygen contents to help our industry make the most efficient use of renewable oxygenates.

Next slide, please. I, you know, after sitting through yesterday's presentations I just, you know, went through my notes and I put down some of the things that kind of caught my attention.

And that was, you know, we talked about promoting conservation. And certainly that struck my attention. Obviously I have a long commute, I commute 50 miles one way. I'm a telecommuter, and I telecommute one time a week. And I've been doing it for some time.

But, you know, I'd like to consider

telecommuting twice a week. So maybe there's something there we could do. But certainly promoting conservation is something we need to do.

Obviously using the existing infrastructure that our industry has already spent so much money on, and expended so much energy on, if somehow or other we could use that, would certainly be very desirable. And obviously we believe the free market works. Maybe some people don't, but I really do.

And then the last one, and not least, is unprecedented cooperation. Somebody said that, I don't know who said it, but we do need that to deal with these issues. I think ARB, the AQMD and the South Coast have given us a good example there.

But we need to, and I speak to myself, I'm sure that a lot of what I've said today, you said, well, I've heard Dave say that before. But we really need to get beyond those simple answers. We need to set up some dialogues, brainstorming sessions. We need to do away with, you know, some of the personal attacks that have occurred in this debate, not here necessarily, but in other sections, and really move forward on this.

You know, to the extent that BP can help host or facilitate future meetings like this, not so much where I'm just talking to you, but you're talking to all of us in a brainstorming session and trying to prioritize things like this, I think that would be a very worthwhile goal.

So, to the extent then that we have -- and not that we do this, you know, five months from now, like, you know, next month or something, I would commit to try and help that happen.

Thank you.

MR. CACKETTE: Okay, thank you, Dave. Our next speaker is Dan Sperling. Most of you know him from the University of California at Davis. He directs the ITS program there, and he's active nationally and internationally on energy efficiency, advanced transportation technologies, et cetera. Dan.

DR. SPERLING: Thank you. I thought I would make life easy for everyone and just, since I didn't have many slides, but just make transparencies, but nowadays sometimes simplicity is more challenging.

I'm going to paraphrase Dave here and I'm going to say I'm an academic, so please bear

with me in what I have to say here.

(Laughter.)

DR. SPERLING: I'm going to -- I'm like a lot of academics, I like big picture ideas and less so with some of the details. So, let me start off first, just a few introductory thoughts I wanted to pass on before I respond to some of the specific questions.

And this actually resonates with some of the things that John and Dave were already talking about. And that is I think that, you know, the past week's events demonstrate the need for a stronger government engagement in building and maintaining our societal institutions and our community. We're talking about infrastructure, public services.

And I believe strongly that we are greatly underfunding our public infrastructure. And I say that relative to other countries of similar wealth.

And I spent a year in France last year and it really emphasized to me how great -- there's almost a disparity starting to occur between what our public institutions provide and our public infrastructure provides and the quality

of it compared to what you see in other countries of similar wealth.

So I think we need more leadership in government and in industry and through our whole society in articulating this.

And I do believe there's a cyclical process going on here, and we're probably at the low level of public investment, at least some people say I'm an optimist, but that's how I think I see it.

But as we look, you know, as we look forward I think we have to understand that change is accelerating. And especially in the transportation and transportation-related areas. You know, I see that we're on a cusp of a technological revolution in the transportation sector in terms of materials, in terms of information and communication technologies, in terms of energy conversion.

We have these, you know, a whole suite of electric drive vehicles that are here or about to be here. We're going to embark very soon on using natural gas to make transportation fuels in a major way. And there's a lot of questions about which fuels, and how we use them.

There's all of the intelligent transportation technologies that are becoming available, that we have an opportunity to use in a way that contributes to social and public goals.

And we have new ideas like carbon sequestration coming along here that kind of is in a way a paradigm changing innovation.

And so what comes out of that, what that means to me is with this rapid change occurring, and about to occur, we really need to reexamine our institutions, and we really need to -- and the rules that we've adopted, you know, to govern various sectors of our society.

And as we bring it to transportation and energy and environment we see that these challenges are becoming more complex. And one of the things that I actually will emphasize here is I do believe that because of that we do need greater reliance on market instruments. We have to become creative about how to use them.

And that means, you know, that's emissions trading, feebates, pay-as-you-go insurance. There's a lot of ideas out there, and I think that we've got to become more creative and more committed to some of those.

I also, this idea of unprecedented cooperation is a very very important statement, and that is we really need to have much greater reliance on partnerships. Partnerships between government agencies; partnerships between government and industry; partnerships, you know, with the NGO community and other public institutions.

You know, the expression that people have sometimes used is, you know, talking about stove pipe solutions. We really need to abandon stove pipe solutions and stove pipe approaches, and try to expand partnerships and the ways of thinking about it.

And kind of one other prefatory comment is with respect to greenhouse gases. That is, you know, one of the most important goals we need to be thinking about. And what that implies is we really need to start thinking about what kind of policy framework and regulatory framework we'd like to put in place for that.

And there's, of course, international debates about it. But those debates have to be brought to the national level, to the state level and to the local level. And for transportation in

particular, it's not obvious how to do that. But my observation is very little thought is actually going into that.

So I have a few of my simple old fashioned plastic transparencies.

(Pause.)

DR. SPERLING: This is response to the first question about, you know, what are some specific goals, and this is actually the most substantive part of my presentation here. And most of these are going to reaffirm what other people have said yesterday and today.

One of the most important is that we do have technologies that are available or will be available that can provide major improvements in energy efficiency, CO2 reduction and emissions, air pollutant emissions.

You know, the hybrid vehicles, the fuel cell vehicles and some version of the battery vehicles, the city EVs, I think are a good incarnation of a good application of battery, probably in many cases the best one for transportation.

Hydrogen, you know, what's holding up fuel cells more than anything is the fuel issue.

And ultimately we want to, I think it's pretty widely accepted that we want to move to a hydrogen fuel for use in the fuel cells.

And so what that means is, you know, we tried in the '80s with methanol, but I think we need a stronger effort in creating some kind of hydrogen retail distribution system for hydrogen.

And, you know, Germany has started putting several in place, and I think we're lagging.

A third point is that, and this is in many ways a national issue, but I'd like to see it become all of the creative people here in government figure out how to make it a state issue, and that is that there is all of this technology becoming available that is providing major improvements.

But without some kind of incentives or regulatory framework or something, those improvements will not be used to reduce fuel consumption. We've seen, you know, I know various presentations were made yesterday, I didn't see them but I imagine someone must have put up the chart that showed how, in the last 15 to 20 years that we've had, you know, we've had the major

increase in power in the vehicles. The vehicles have gotten bigger.

And so what's happened is that we've had major efficiency improvements in our vehicles over the last 20 years. But, if you look at the bottomline in terms of fuel economy, it's not changed or it's even gotten worse in terms of fuel consumption per mile.

And so somehow we need to figure out a way of making sure that some of these technology improvements and efficiency improvements translate into fuel economy improvements.

We need to get sulfur out of fuel; reformulate some of these fuels so we can use fuel cells, and so we can use some of the low emission diesel engines, which are an attractive option. And I think we need to make sure that's part of the suite of options. They are much more efficient and have certain attractions.

Moving more to the kind of more mainstream transportation side of it in terms of how do we get improvements is that we need to, we've not been very successful at what we call transportation demand management. And one might even say we've been complete failures at it.

But there are opportunities for major improvements. And the challenge is how to do it in such a way that people gain value, that people see it as better rather than worse. That we don't take things away.

And here, again, there's an opportunity, because of technology, to accomplish that. With the information and communication, the wireless technologies that are becoming available; the computing capabilities.

There are options that are becoming very attractive, and these include, for instance, smart car sharing. They include smart paratransit. They include dynamic ridesharing. These are ideas where they're rooted in the basic idea that we need to get people to think about transportation and modes of transportation in a broader way than they do now.

Right now you're going to make a trip somewhere, you don't even think about how you're going to get there. You just walk out, take your car and go there.

But in many ways, even for the individual this is not the most efficient or the best way of doing it. People would like different

types of vehicles available to them. They would like, if they're going into a downtown area, they have parking problems, so there might be better ways of doing it. They would like different kinds of services that can be provided to them.

And so now with these ideas as smart carsharing, smart paratransit, we can provide a very high level of service. We can provide one of two things to the traveler. We can make transportation either cheaper for them by some of these options; or we can provide an enhanced level of service.

And so people have choices. And so what we need to do is create more choices and the technology exists now to do that. And as I'll talk about in a moment, though, to accomplish it requires tremendous partnerships and cooperation between governments and companies in a way that we haven't done in the past.

Another policy goal, I'm using that phrase policy goal rather broadly, is, I think, and I believe this also strongly, we need to create an independent transportation energy R&D capability.

You know, we've developed much more of

that kind of independent capability with stationary energy and electricity. There's very few, if you look at the national labs, the universities, independent research organizations, there's really very little capability in the transportation energy area.

Another important goal is I think we should accelerate our efforts to support technology transfer to China, to India and other developing countries. You know, many of these technologies that we're talking about would find a very receptive home in these places, and can have, in fact, a larger benefit and a larger impact if implemented there and here.

And last, in terms of the list of goals, is a much more aggressive effort at supporting the development of an advanced environmental vehicle industry in California. You know, California's worked on the kind of incentive end and the market side, but I think, you know, certainly we have tremendous advanced technology capabilities in this state, and there's a large opportunity to play a much larger role in a way that will lead both to economic development, as well as environmental improvements.

I really am being a diligent academic here, following directions. You know, academics have a culture of always questioning and following their own path. So I'm proud of myself here.

(Laughter.)

DR. SPERLING: Actually, I'd note I'm the first one on the panel actually to follow directions.

(Laughter.)

DR. SPERLING: Although you'll see I don't have very good answers, but at least I tried.

What non monetary incentives would be effective in achieving these goals. And here's where I pick up on that theme of partnerships. A much greater effort, a much greater commitment to public/private partnerships to promote some of these new transportation options like smart car sharing, smart paratransit, dynamic ridesharing.

And I note that the current Director of Caltrans, Jeff Morales, is actually very receptive and has been working, I know, with Alan Lloyd and the Energy Commission, but it's just the beginning. And much more can be done.

Other strategies is promoting social

marketing. I know sometimes people don't like the phrase social marketing, but the idea of helping consumers understand the different attributes of vehicles and the transportation choices that they're making, and that think through some of the implications, and being able to make a more informed choice. And to emphasize what are the implications of those choices.

And the last one here, create partnerships. In the transportation area I think something that's been lacking in California is partnerships with the California Department of Transportation, with Caltrans. You know, there's a tremendous amount of money that flows through Caltrans.

And, you know, Caltrans is interested in doing the right thing, and I think that much closer ties with the Energy Commission and the Air Resources Board in developing broader, more environmentally and energy based strategies would be something that they're receptive to. And there are resources there.

There was a question, are non monetary incentives sufficient to achieve these goals. No. That's my one-word answer.

And, you know, actually I'll comment about that on the next slide, but you know, the answer to that is because we have an economy, an economic market system. A market system is very powerful; it's the most compelling framework we have for decision making and allocating resources. But it's not perfect. It's well recognized that it has its short-comings. And there's a very important role of government.

And there's a tendency, you know, over the last couple decades to kind of pull back from some of those responsibilities. And I think what happened last week, at least in the security area, points out how important it is to have a strong public capability.

And in terms of the market system there are many many shortcomings. That's why we're here. Many of the environmental and energy issues fit into that, are part of those shortcomings.

And so what regulatory mandates would be effective. I just have two thoughts on that, and that is this is something that's already started, but I want to support it, and that is the ZEV mandate is being altered to provide credits for community shared vehicles. And I think that's a

very important new initiative.

And to respond to the criticism of the ZEV mandate, you know, because that is always hovering in the background on a lot of these discussions is that I see the ZEV mandate as a very impressive example of government being flexible and adaptive.

You know, when it was first adopted in 1990 it had goals that proved to be not very real or targets, requirements that proved not to be very realistic the way that they were conceived. But no one knew at that time, it was technology forcing, as are many of our rules and initiatives in the transportation energy area.

But it's been modified over time. It's been made more flexible. In many ways it has market based instruments being built into that in terms of tradeable credits and trading and so on.

And so this is just one part of it, I think, that should be acknowledged and recognized, this community shared vehicles, as using this policy instrument to bring together some of these energy and transportation goals.

And a second thought is that, a second issue in this regulatory mandate is that -- by the

way, most regulatory mandates are morphing at their edges, at least, into being market instruments. And, you know, the old idea of command and control versus market instruments has really been fuzzed in most cases. And it's probably useful to remember that.

The second point here is that as we start thinking about climate change and greenhouse gases, we really need to start thinking about what does that mean. You know, we have this very sophisticated elaborate air quality regulatory framework in place. And it's been used for many other goals, other than air quality.

In transportation we often say, air quality is the tail wagging the transportation dog. It's not so true anymore, but it is something that's very firmly in place. It's been very effective in improving our air quality.

And one of the questions that comes up, and I can just hear some of my colleagues, for instance next to me, probably cringing when I say this, but somehow, you know, maybe greenhouse gas can be appended to or connected to the air quality regulatory framework in some way.

Although I would point out that I would

strongly urge that market instruments be considered as much as possible in doing that.

And on the third and last graph/chart that you can probably barely see up there, talking about are government monetary incentives needed and for how long.

And I guess the answer to that -- I'm kind of surprised by that question -- it seems so obvious to me -- and that is government incentives are needed forever. I mean, the, you know, market framework that we -- was that yours, John?

Well, that's right, you know, government incentive, you have to be flexible; they have to be adopted and used in different ways. But, it is an integral part of our governance and has to be.

And then lastly, what specific monetary incentives would be effective and how should they be funded. And that's getting too specific for me, except that I have one idea that I'd like to put forth.

And that is that some of these ideas in the transportation sector about creating new forms of transportation, it's very very difficult to bring them into being. We have a very homogenous monoculture type transportation system. And it's

very resistant to change.

We do very little experimentation in transportation sector. And what we need is a lot more experimentation. And so what I see as an important priority is support of pilot tests of some of these innovative transportation services such as the smart car sharing and smart paratransit.

But as I said before, it has to be done within the context of different kinds of partnership, public/private partnerships, for that to work. Because so many of our activities in the transportation sector cut across jurisdictions, public/private, different kinds of companies are involved. And for change to occur you really need to engage a lot of different organizations in those discussions and ideally in actually doing something. And that's an academic speaking.

So, on that note, I want to thank you for having this opportunity.

MR. CACKETTE: Thank you, Dan. We'd also invited Stephen Bernow from the Tellus Institute, but again, -- which is back east, and he was -- Denver, maybe, I forget where it is, but -- it's Boston? Okay, Boston. So he was

unable to make it, unfortunately. He was going to be addressing climate change policies and measures.

For our final speaker we're going to have Patricia Monahan from Union of Concerned Scientists, who is going to address a report that she and, I think, Julia Levin, who's in the audience, did on petroleum dependence.

MS. MONAHAN: I think I'm going to change the format a little bit. I do have slides, but I'm feeling like a little concerned about the amount of time that you all are spending in the dark, and I'm speaking literally, not figuratively. So I'm going to throw my slides out, and just give my talk without slides, if that's okay to folks.

And I think actually I'm going to go up -- can I sit over there? I mean can I stand in the -- can you all hear me, because I know I don't have the strongest of voices.

So as not to set any false expectations I want to be clear that Dan is the first and only panel member that's going to be following the list of questions in that particular order. I think I'll be addressing all of them but perhaps not as

sequentially.

And I'm also going to be expanding somewhat on the remarks of the illustrious Mr. John White, building a little bit on what he talked about the volatility of supply in California.

And also to look at the other side of the equation, the increase in demand, since it's actually the intersection of those two that causes prices to rise.

And I'm going to be speaking mostly about a report that we published called over a barrel. I have a few copies of this report left if anybody wants one. It's also available on our website, how to avoid California's second energy crisis. And I'd like to acknowledge the authors, co-authors of the report, Julia Levin, who, as mentioned, is in the audience; and also James Corless with the surface transportation policy project. We're with the Union of Concerned Scientists.

So there are numerous parallels to the electricity crisis with what we're terming the potential gasoline crisis. We're seeing, as John mentioned, that California refineries are

operating at near 100 percent capacity. That refinery control is concentrated in a few hands, a handful of companies that control more than 90 percent of California's gasoline supply.

We're seeing the phase out of MTBE next year; potential price spikes as a result of that; problems with getting sufficient supplies of ethanol to meet our oxygenate requirement unless the federal EPA changes its mind.

And we're also seeing California demand on the rise. And I really want to focus on that, the fact that California's rising consumption, California's love affair with gas guzzling vehicles and our need, apparent need to drive more miles every year that's fueling our rise in demand and fueling a potential crisis, not just in supply, not just in price, but also the environmental costs that that rising demand can incur on society and on future generations.

So, a booming economy coupled with relatively low prices has fueled our demand for gasoline. We've seen a steady increase over time. Since 1970 our demand has risen from 9 billion gallons to over 14 billion gallons. And we're seeing in the future that in a business-as-usual

scenario more of the same.

The reasons for this demand increase are twofold, as I've said. Basically our use of gas guzzling vehicles and the fact that we're driving them more and more miles.

Between 1970 and 1990 population grew 60 percent while VMT more than doubled. VMT increased more than 100 percent.

Californians are buying more and more gas guzzling vehicles. 1975 light trucks were 20 percent of the new vehicle market. As of 2000 they were up to 46 percent, so nearly one in two of the vehicles on the road are light trucks.

In the future we see more of the same. The California Department of Transportation projects an increase in VMT of 55 percent, with population anticipated to increase only 31 percent. So again we're seeing population, growth in demand outstripping growth in population.

The CEC business-as-usual scenario has VMT increasing 37 percent, so less than what the California DOT is projecting. But what's of concern is that light duty trucks are projected to make up 46 percent of the onroad vehicles. And that's 46 percent of the current new vehicles are

light trucks. But as those new vehicles penetrate the market and become more commonplace on our roads, nearly one in two are projected to be, by 2020, light duty trucks.

As a result of this the CEC anticipates demand to increase a whopping 43 percent by 2020.

Now, supplies, we anticipate the supplies are not going to be able to accommodate this skyrocketing growth in demand. California's 23 operating refineries are at near maximum capacity. There's lots of concerns of communities that live around these refineries, environmental justice concerns, concerns about the toxic pollution being released by these refineries.

I'd like to say that refineries are the number one source of toxics to the environment according to the USEPA toxics release inventory.

And the things out of MTBE is just going to exacerbate this situation. We think there's going to be a crisis whether or not MTBE is phased out, but what it does is hasten the crisis. What it does is put ever more the potential for price spikes happening as soon as next year.

Now, we believe that government action can help avert this crisis. We're heartened by

the fact that this conference is occurring and by the fact that ARB and CEC are working together. We think that this kind of partnership is truly fundamental, that there has to be revolutionary changes on how governments do business and how we work together, both inside government, outside government, with industry folks and with nonprofits. We all really need to come together on this and work to reduce demand.

We see sort of two general areas where government actions are needed. First, to increase fuel efficiency of vehicles both on the road and new vehicles. And also to reduce vehicle miles traveled.

Some of the comments the other panel members have made we agree with heartily, with incorporating life cycle costs into our decision making analysis; with employing a whole host of tools in our tool box, financial incentives, nonfinancial incentives, regulatory and nonregulatory.

We think that government action is fundamental. We can't just trust the market. We recognize the power of the market. The fact that you have to utilize that power where possible.

But also that there are failures in our market. There are externalities that aren't being internalized. There are costs on future generations we cannot quantify, but we recognize that they are likely to occur.

And so given all these uncertainties we need to really be creative in how we implement policies to reduce demand.

In terms of short-term measures, there are some short-term measures that we can do today, tomorrow and the next year to help reduce demand. Those mostly involve improving the fuel efficiency of the fleet of vehicles on the road.

That means giving folks, consumers, information about how they can improve the fuel efficiency of their vehicles through NRDC's proposal of fuel efficient tires; through changing oil filters; through making sure folks are following the speed limit. We just need to provide consumer information on how they can keep their fleet of vehicles on the road, maximize the efficiency of those vehicles.

In the long term we need to look at increasing the fuel economy of new vehicles, and that is more challenging. What we would ideally

like is for the federal government to implement fuel economy standards.

We've looked at what it would mean if the federal government implemented a 40 mile per gallon fuel economy standard. And what we see is that California would save 3.5 billion gallons of gasoline by the year 2012.

And the consumer savings would be upwards of $1.8 billion. That's also in the year 2012. So that's in a single year. That's savings for a single year.

If the SUV loophole would close California would save 11 percent of its gasoline usage. That's 1.5 billion gallons. So, over the long term we really need to focus on how we can improve fuel economy.

Also what California can do right now is to create incentives for fuel efficient vehicles and for fuel diversity, waiving state sales tax, waiving bridge tolls, waiving registration fees, providing incentives for consumers to purchase fuel efficient vehicles.

Also providing income tax deductions, credits for fuel efficient fleets. I think we've heard of a variety of creative ways that we can

help increase fuel economy even if we don't have the power necessarily to set national standards.

We'd also like to see fuel efficiency labels on cars. We want consumers to know what they're getting, what they can save if they had purchased a more fuel efficient vehicle.

We strongly support CO2 regulations that given that transportation, as John said, causes more than half of the global warming emissions in the state, and the impacts to the state in the future could be tremendous from global warming, that the state needs to move aggressively to regulate CO2. We feel the state needs to be a leader in this and have the nation follow rather than the other way around.

We also feel strongly that we should be maintaining and expanding the ZEV program.

In terms of reducing vehicle miles traveled, again we've categorized them sort of a short-term and long-term measures. And we think that Californians will use transit, but there are things that we can do to promote transit.

We're seeing between 1995 and the year 2000 that transit use in California increased 17 percent. So, given the right options, if transit

is easy and it's accessible, and if it's better than their own car, that Californians will get into buses and other forms of transit.

So what we would like to see is for the state to remove the current restriction on the use of state transportation funds from mass transit. And to provide incentives for businesses such as the federal IRS commuter choice program. To provide transit passes and vouchers to low income residents. And to increase other transportation alternatives like carpools, car sharing and telecommuting.

We also believe that we should price transportation to reflect the true costs of driving. This is a standard economic measure. We know the price of gasoline does not reflect the cost to society. We know that gas taxes are considered a nasty word, but we believe that we should, where possible, try to make the market reflect what the true costs are to society of gasoline usage.

Suggestions such as pay-as-you-go or pay-at-the-pump insurance would support -- we think that there should not be tax breaks for employer-provided parking. And there should be

congestion pricing for bridges, tunnels and toll roads.

We also think, and I think that we've heard a lot about incentives for smart growth. We support incentives for compact growth. And we think that if the state were to move aggressively if we all were to work together on this that we can help avert a crisis. That we do have time left, unlike the electricity crisis where we were surprised by the implications and surprised by the duration and the impacts on the state, that we can come out ahead of this crisis.

We know it's down the road. So we think that by taking action aggressively today we can help avert a crisis. If we don't take action we think the course of unchecked demand is going to lead us into a serious, serious crisis, not just public health, but environmental and economic, as well.

So, thank you very much. And, again, I do have copies of this report if anybody would like to have a copy. Thank you.

MR. CACKETTE: Thank you, Patricia. I'm going to open it up to the floor now if people would like to have questions of any of the

panelists.

Roland.

MR. HWANG: Roland Hwang with the Natural Resources Defense Council. My question is related to the issue of how we go about achieving our goals here.

And one of the most important aspects, I believe, of AB-2076 is that it requires set goals for petroleum dependency reduction.

And one of the issues that was presented to the panelists is how should those goals be set; what should those goals be.

From our perspective, setting goals is absolutely vital. It's the way that our air quality programs have been very successful. The Clean Air Act sets goals. We're not sure exactly at the time how it's going to be met, but it forces technology for it. It's been a very successful program.

In contrast to that we've had a study called SB-1214 here in California, which is least cost planning framework, which would put the issue of petroleum dependency and cost and issue of least cost planning, has not been so successful as we've seen over the past decade in doing anything

to reduce petroleum dependency.

So my question for the panelists are do you have recommendations for how to set petroleum goals, preferably numerical goals over some timeframe that maybe some panelist may have even some different perspectives about even a need to set goals in a numerical sense. I'd be interested in hearing of that perspective, also. Thanks.

MR. WHITE: First of all I think we need to look at different times and scenarios as a starting point, and I think the first date that we can probably do something meaningful about is 2010, although some might choose to go to 25 or 6. But I think 2010 is a reasonable timeframe to sort of take a look at where we're going to go if we do nothing, and what are our options.

I also think a further goal of maybe 2015 or further timeframe, 2015 or 2020 would also help us sort of see, you know, more about where we're headed.

Secondly, I think that the rate, I think the goal of displacing the growth with alternatives to the status quo is a way of measuring our progress. I think it is one metric we might consider working off of.

I also think that, you know, frankly compared to the contentiousness that this issue has brought in the past, that the scope of the remarks here today has some potential for moving us forward on a constructive basis.

I thought Dave's observations, while I don't agree with all of them, reflected a degree of agreement on their being some things to talk about, which I think is an important first step.

And secondly if you look at the whole list, I'm not sure any of us can say anything other than we probably need to do all of this stuff. I'm not objecting to imports. I'm a little worried about them, but I think there is a question of how we go about sustaining a consensus and sustaining momentum.

I do think that the problem really is the auto industry. I'll just single it out. Because I think the auto industry is out of step with everybody else in this conversation. You know, they are not intending to change anytime soon.

We're going to have fuel cells in the far distant future. We're going to have some improvements, but we're basically, if you look at

the short-term trends of what we've suffered in the way of poor product choices, less performance from the standpoint of fuel economy goals, I think there's a -- I think the goal of the program needs to be how to accelerate actions and investments across the board, infrastructure, product development, new technologies, new ways of delivering transportation.

I agree very much with Dan, the way we spend public infrastructure on transportation in California compared to Europe, and also the poor number of choices we have relative to what the Europeans have.

We also forgot to mention bicycles, which oftentimes aren't taken seriously as a commute option. But it seems to me we need a way of focusing everybody's energy and recognizing that all of us seem to be agreeing that there's a need for action sooner than might occur if nothing is done.

And that the urgency isn't present, but we can see the need for the urgency in the out years.

So one of the things I think we need to think about is how can we mobilize a set of

actions that might meet the goal. I think the setting of a goal and setting some measures of progress is important, but I also think we have to think of how we're going to actually achieve some consensus and really try to provide some leadership ahead of where we might be if we don't find a way to do that.

MR. CACKETTE: Dave, let me ask you to respond to Roland's question that, you know, John's basically saying that a goal of reducing the rate of growth, how much that is, or whether that's negative, but reducing the rate of growth of petroleum use is a good public policy goal. What does BP and you think about that?

MR. SMITH: Well, let me say first BP does not have a policy on that.

(Laughter.)

MR. SMITH: So anybody listening in there. I raise that in my presentation that we need to have a lot more discussion on that. And that's why I think we should get together and talk some more about it.

I agree you should probably have long-term goals and short-term goals. I was talking to Hank here a little while ago about a few years ago

all of our companies were involved in quality programs. And trying to improve quality, or improve efficiency is another way to use those words.

And one of the first things we did was measure. We measured everything. And just the fact of measuring helps to provide incentives for people to change their behavior.

So, I think we should be talking about that. I personally, not BP, but I, personally, think that trying to look at replacing the expected growth and demand for petroleum in the short term, over the next five, ten years, is not an unrealistic goal. I think that is very, you know, -- you know, at this point in time it looks like a very challenging thing.

If you were here like I was and many of you were here ten years ago, or somebody, and we were looking at trying to reduce emissions from vehicles at that time, to try to get them to the place where they would be competitive with other petroleum fuels like natural gas, or LNG, or even M-85 at the time, and we didn't -- it was a very big challenge at the time.

We could never, I mean there would never

be a time when I could imagine that vehicles could be at the emission levels that they're at today. I couldn't imagine it.

And so, when you say well, let's set goals, you know, that's like saying ten years ago, well, let's set ULEV goals. I mean nobody would have set those things where they are now today because they just never thought that they'd get there.

So, I think we have to start, I agree we have to start. But I'd like to see some, you know, more, you know, short-term goals in the confines of a longer term goal.

But we need to get there. And we need to talk about it. I really don't understand how much we can. I heard some of the other, you know, alternative fuel presentations last, yesterday afternoon late.

You know, after I heard all those presentations I didn't think we had a problem. I mean all those look like they were ready to go, you know, there wasn't any big problem. We'd throw a few dollars at them and we're there.

So, I'm not sure exactly where we are, but I think that would be a realistic goal.

MR. CACKETTE: I wanted to ask you thing about that. Is the -- do you think the oil industry in general, or BP specifically thinks that they can produce the amount of petroleum products, gasoline and diesel, that these growth scenario projections would demand? And at a reasonable price? Or is it -- or do you think there, you know, is a crisis looming sometime in the future by which we have to do something to reduce the demand?

MR. SMITH: Well, that's a loaded question.

(Laughter.)

MR. CACKETTE: Chairman's prerogative.

MR. SMITH: We have a policy in development that says that we think that on a global basis, at least in the next, you know, five, ten years or so there's probably enough refinery capacity to meet the needs.

It's a matter that not all the capacity's in the right place, or, you know. So like in California we're going to have to move some product into the state through imports. And I would like to suggest that, you know, that may provide us some supply flexibility that we, just

like with ULEVs ten years ago, we may be very surprised with what can come into the state and what that provides the state as with flexibility.

You know, once you establish markets and supply relationships then that opens up all kinds of things to our suppliers as they look forward to like the potential of turnarounds at the refineries, or upsets or something.

And if you've got a ship coming with product, it may be very likely they could put some extra product on it. And those things may not be there for us today.

Did I answer your question? I kind of got off to rambling.

MR. CACKETTE: I didn't hear a yes or a no, but I think maybe it's not a yes or no.

MR. WHITE: I'd like to add, though, a concern to that scenario, and to suggest why we should differentiate between natural gas liquids and petroleum.

And that is that the sources of petroleum are -- the sources of petroleum are far more limited than are the sources of natural gas around the world. And I think that the need to examine the nation's growing dependence on middle

eastern supply sources is certainly back in our minds, if it ever left.

And that I think combined with the fact that the natural gas demand scenarios in the non transportation sectors suggest some significant, we've had the head of our state Power Authority suggest it's time to start getting ready to build LNG plants.

So this need to look at scenarios and different sources of supply and different options for meeting supplies, I think is not just in the petroleum sector, but relates to natural gas and natural gas liquids, as well.

Because I think that's one of the things that made California interested in alternative fuels in the beginning. And I don't think we have any less reason to take a fairly serous look at some of those issues.

Because it's similar to the issue of imports in terms of refined products, except that the potential exists for natural gas liquids to be imported from different places than the conventional oil producing areas.

MR. SMITH: Well, I think Paul Wuebben asked the question of the natural gas people

yesterday about the infrastructure of natural gas and whether or not it was going to be able to support future demands. Especially with, you know, projecting large increases in transportation or power plants.

I don't think you got a good answer there. What little bit I know about it I don't think it's there. Maybe it is.

MR. WHITE: Well, you're potentially going to be competing with other parts of the country.

MR. SMITH: Right, absolutely.

MR. WHITE: The Canadian supply is not going to be just for the west coast anymore.

MR. SMITH: Well, these are -- I mean personally I think this is the kind of debate that we need. We need actually a different setting. We don't need a panel up here and you guys sitting out there trying to stay awake. We need to have chairs sitting in a round circle and breaking up into small groups and talking about these individual issues, and then trying to come back, prioritizing them.

When I was involved in -- when the MTBE issue broke and we had the problems that we had

with that, or are still having them, we helped form the MTBE research coalition with the water folks, ACWA, and other folks who were intimately involved in that, Santa Monica was involved in it.

And we spent a good part of six months or longer just trying to define the problem, define what we knew, what we didn't know, prioritize those areas, and then agree to how we were going to fund research to figure out what the problem was.

And our industry stepped up, as well as the MTBE industry, to fund those kind of research. But what -- we had to go through a very kind of a painful process of listening to all the ideas everybody had. And we had, you know, where every, excuse the term, snakeoil salesman came in and said, okay, here's how you deal with this.

And we listed all those. And then we had educated people say, you know, this is a good idea, but this is like ten years away. This one here is, you know, forget that one.

So we narrowed that down to maybe 10 or 15 research items. And then we went out and got money to do those research areas.

And that's what we really need to do

here. We've spent two days, you know, throwing out a lot of great ideas, but I think we all, as people, advertise their products or ideas, there needs a lot more study.

And CEC is really charged to do that in this report, to some extent. And I really think it would be beneficial if we tried to continue this process before the report is finalized.

DR. SPERLING: Can I respond to Roland's question?

MR. CACKETTE: Yeah, Dan, please.

DR. SPERLING: Just a quick response to Roland. He's asking about goals. I would just point out that that goals that are compelling in terms of what are important to people are going to be the transportation goals because with a lot of increases in population and not many new roads, it's going to get a lot worse out there on the roads. And that's going to be a pressing issue.

And the other is air quality, especially in the central valley with all the growth there. And so as we talk about goals in terms of what's politically compelling and what's going to engage the state and the people, I think we need to keep that in mind.

I wish I could say that about CO2 and greenhouse gases, but I think that's at least a decade away.

MS. MONAHAN: Can I respond really quickly, too?

MR. CACKETTE: Please.

MS. MONAHAN: I think I'll be a little more, I mean perhaps intrepid than Dan, and I would say that I'd also like to respond to Roland's question.

While we need targets, we also have to be cognizant that if targets aren't mandated there's very little -- we've seen time and time again that we don't actually achieve those targets.

And so as much as possible we would love to see targets mandated. And we would also love to see greenhouse gases regulated. And when we're talking targets we actually think, you know, well could the state look at specific targets for CO2 reduction, whether that be from the Kyoto Protocol or state derived numbers.

But where possible, mandate. Where possible, have CO2 as your measuring point. That also provides for some flexibility within that to

use different strategies for achieving CO2 reduction.

MR. SMITH: I'll just offer that mandates sometimes have been successful and sometimes they haven't been successful. I can point to a lot of situations where industry, whether it's oil industry, auto industry, whoever, has been able to beat those mandates.

And I think our industry, BP in particular, wants to be part of the solution. And I would like to see government start, you know, I hate to say this, to trust us a bit. Maybe we haven't had, you know, give us a chance to meet some of these things through informal or formal agreements.

I look to the auto industry to really come up with something. If they're not going to support increased CAFE standards, then, you know, I really ask them to come back to us and say, well, what is the answer. And what are you willing to commit to.

So, anyway, I think that comes back to that unprecedented cooperation that we have to work in. And at the same time, if we don't perform under some of these other less stifling

stovepipe solutions, then you know, we should be expecting to be controlled through mandates.

MR. WHITE: I'd just like to add a couple points to Dave's point. I think I would just remind us of the quote that Ronald Reagan gave to President Gorbachev, which is trust but verify.

And I think that in the case of BP, in particular, and in the case of some of the auto industries such as Honda and Toyota, we have exceptions to the inertia. And I think the role here of mandates is to stimulate private initiative.

And, you know, oftentimes, I mean I think the point was made by Patricia that, you know, the markets are powerful. And we recognize that from the environmental community. And I think you heard some support for pricing and things that haven't always been a focus of the environmental community.

I think, though, the problem at the moment is, and actually we're hopeful again about the global warming being something the public can connect with, particularly if they, you know, if they recognize and see that action on global

warming is tantamount to action on a broad array of fronts.

And that it's about pollution, it's about public health, it's about diminishing our dependence on petroleum.

But one of the things I'd like to see the auto industry do, and I think they're going to have an opportunity when the Legislature enacts AB-1058, which I hope they will next year, is to see some voluntary plans and scenarios other than business as usual from the auto industry, itself.

Right now they've won the battle in CAFE in the Congress for this year. That means no change in terms of choices for consumers. I also think we need to take a look at consumers' side of the question, because the thing the auto always comes back is people want these vehicles.

And I frankly think the baby boomer women need some particular examination because they seem to be driving a lot of these purchase decisions on SUVs out of concerns for safety and out of other uses of the vehicles.

But the fact is a combination of better product choice that reduces greenhouse gases, improves fuel economy, reduces petroleum use, and

a better understanding of what's holding the consumer back, if anything. I tend to think it's lack of product choices.

But I'm not sure we understand fully the nature of people's relationship to those automotive buying decisions. And it seems to me we ought to look at both sides of the equation.

But on greenhouse gases and on refinery petroleum, the responses from the rest of the private sector, whether it's actions on carpooling to support their employees, on commute alternatives, or whether it's actions to clean up refineries and make everything more efficient, the rest of our economy is respondent with the goal of efficiency driving decisions.

We haven't seen that response from the auto industry. I think it's because they want to delay investment. And I think we need to find a way to engage them constructively and bring out the best in them and particularly bring out and reward companies that are offering products and willing to offer products ahead of when they're required.

MR. FONG: Paul.

MR. WUEBBEN: Yeah, I'd like, if I can,

to maybe pose a question that I asked Ben Knight of Honda yesterday, to give an opportunity for some further exploration regarding hybrids.

And maybe just to start kind of with the context to read into the record, there was an interesting connecting of the dots by a auto salesman in Indiana, as reported in The New York Times on September 15th. And his simple marketing message was fuel efficient vehicles in stock, pray for NYC.

The question I had for Ben, and I think I put on the table, is in light of the fact that there's been a 15 or 20 year flat line on the integrated truck passenger car CAFE, and in light of the tremendous success of the gold standard concept adopted in 1990 based on, you know, ZEV technology, and as it evolved, is it possible now to establish a five-, ten- or 15-year horizon for a new diamond standard, if you will, to supplement the gold standard. Because I think both commodities are tremendously valuable.

And that diamond standard, if you will, would establish a minimum hybrid requirement that would have all vehicles hybrid on a emergency or on a urgency basis. And that by, as I asked him,

is it feasible by 2007 or 2010 to make an entire, your entire product line to have some degree within a growing aggressiveness of that technology as hybrid.

Because as Dan, I think, pointed out, we're on a cusp of tremendous technological revolution. You see the number of hybrid vehicles placed in large production exceeding any alternative fuel advocate's dreams just 18 months ago.

So, I guess the basic question is, is there an opportunity, from a policy standpoint, to establish an additional set of goals that link, as the public, I think, are very readily amenable to linking greenhouse gas efficiency, national security and technology innovation and a diversity through or competition through diversity.

Is it time now to put out a signal that if some of these near-term voluntary efforts aren't sufficient that, in fact, it's feasible now to talk about a hybrid mandate.

(Parties speaking simultaneously.)

DR. SPERLING: I think, in general, it's problematic to have a technology based standard like that. That worries me. I mean even if you

talk hybrid there's a whole range of hybrid technologies, you know, from the very mild hybrids that are little more than enabling region breaking to, you know, a plug-in.

So, I don't know, I mean if someone can get creative and figure out how to do it, but I would -- my response is let's focus more on performance based. And I know what John just said. It's hard to do performance based in California because of, you know, our authority with energy.

But I think, with caution, be careful about technology based.

MR. SMITH: I support those. Obviously performance based standards are good. And, you know, to the extent that California sees a need here, you know, we should be working together to go to the national level to try to find a solution together.

MR. CACKETTE: Anybody else? Ted.

MR. HOLCOMBE: Thank you. I'm Ted Holcombe with Pacific Gas and Electric. I'd like to turn over the floor to Don for a second who's going to make a remark for me, and then I will continue on to respond to Dave's remark.

MR. FONG: I think there was earlier a question posed regarding adequacy of natural gas supplies. The Energy Commission does have a recently released report prepared by staff in our Fuels Office, which attempts to address the mid-to long-term supply question for natural gas for a variety of end uses.

Since there's no one here from that group that might be able to speak up, let me just say that our understanding is that the natural gas resource in the ground is likely to be more than adequate to meet all of our future anticipated needs.

There is a question about when that gas can be recovered in an economic fashion, and when it might be delivered to the various end use applications. I think California certainly recognizes that its in-state distribution system needs to be expanded to accommodate growth in natural gas applications, given the number of additional power plants that are going to be built here. And since a large number of them will depend upon natural gas resources.

Now, we believe that this activity will require several years to successfully accomplish.

That is increasing the rate of production of natural gas from existing resources, and then increasing the rate of how that gas is distributed to the various markets.

But this is a cyclic type of event. We went through one maybe ten years ago when we recognized that the state was going to be short in natural gas supply. And lo and behold, the state cooperated with the federal entities and encouraged the building of a number of additional natural gas pipelines that provided the gas that we did need for end use applications.

We think that the same cycle will repeat as market signals are provided that allow the developers of that gas and those who distribute that gas, those market signals can allow them to recover those investments, then we will have that gas.

But our need for gas is not really constrained by a limited amount of gas that's in the ground.

MR. HOLCOMBE: And the other side of that, this is Ted Holcombe with Pacific Gas and Electric, again, is the number of projects for pipelines to deliver gas to California, which the

CEC report addresses. That there are expansions that are already proposed and underway. Some of them are under construction.

And I don't see that as a long-term problem. Whether you might have a problem over the next year is conceivable, but it's not -- you also have to remember the gas supplies are tight in the winter, not during the summer driving season when gasoline supplies are tight.

So that natural gas' ability to supplement gasoline as a vehicle fuel is probably a good application, because it brings around year-round use of the existing capacity.

There's a couple other points. We talk about goals. John, I appreciated your remarks about all the alternative fuels. And I support alternative fuels. But I think we ought to be a little careful about trying to get every alternative fuel in place, you know, everywhere.

I can see a role for ethanol in farms. I can see it being home grown to some extent. And I think that the framework for doing that is pretty much in place.

I see natural gas as a vehicle fuel coming into some constraints. Part of the problem

is, of course, as you know there was legislation years ago that prevented us, as a utility, from building stations that were going to be open to the public because we'd be competing with our dear friends in the vehicle supply industry.

So, if we build a station we cannot build it for the purpose of supplying public demand, as opposed to our own demand. Nor can we take a new station that we're going to perhaps construct and open it to the public.

That's a constraint that we probably don't really need.

The question of regardless of who builds it and for what purpose it is built, I do believe that we should be able to get natural gas to vehicles, at least one station every 100 miles or so. And we have various geographical portions of the state where that distance is exceeded.

And that's something that could be looked at. It's a very simplistic goal. But it's something that I think deserves further discussion.

You know, my pet peeve for years and years and years, and this is me speaking as an individual, is that if I have a car that I do not

drive, it still emits.

Now, the ARB has done wonders in putting on evaporative controls that work real well as long as the car is still driven once every so many days. But if you leave a car for a week during the summer that evaporative control will become saturated and will again emit.

So, I have a personal interest in a compressed gas fuel that does not emit. And I don't say compressed natural gas, could be compressed hydrogen gas, it could be compressed propane, but a compressed gas fuel is a preferable fuel for things like a fuel cell, for things like a vehicle fuel for a standby vehicle, so to speak. For a vehicle in the city which is only used once in awhile.

I throw that thought out as something that we talk about fuel neutrality, but we get to the point of what are the real world emissions. And when we have the regulatory framework addressing the full parameter of the real world emissions on a pounds per year basis, so to speak, or if you prefer, pounds per peak ozone day basis, on average, then perhaps we can talk about fuel neutrality. But until the regs become that way,

then it's tough to do.

Thank you very much.

MR. CACKETTE: I wanted to pose a question to the panel. In setting goals, if you look at the Clean Air Act, the goal was to protect public health, achieve a safe clean air level. And it was to be done largely without regard to cost. And then the costing and cost effectiveness assessments came in as you looked at individual measures to achieve that goal.

What I'm looking for is any comments as to whether the goals that would be set, the broad goals need to pass some kind of economic test, or should they be based on something else with the economics being relegated to specific actions that are taken to achieve the goal.

MR. WHITE: If you go back to the late '70s, some of us can still remember, there was a sense of urgency that came about because of the crisis of supply that we faced at that time.

And I think the Energy Commission and Acurex, if I'm not mistaken, took a look at what to do to provide alternatives to gasoline. And I think the first objective that was considered was to insure that we didn't worsen our air quality

situation in responding to the supply problem.

So, to my mind we should be sure that we do better than break even, but first do no harm with respect to the environment and the life cycle cost.

And then second I think the economic question has got to be based on a life cycle cost analysis and not a first cost basis. Because I think, and particularly when we're talking about investments that the private sector needs to make, if we're trying to accelerate the introduction of technology, accelerate investments, then we need to be sure that we're valuing the timeframes properly and using the right kind of discount rates and not making the first cost the sole criteria.

Clearly an economic component is going to be needed, but I think it's got to be based on life cycle cost. And it may well require some sharing of the cost in order to stimulate and accelerate the investments.

MR. CACKETTE: If you would make those comments relative to your suggestion for a goal, which let's say we cut the growth -- the goal is to cut the growth in petroleum by some amount.

MR. WHITE: Half.

MR. CACKETTE: Okay, half, let's say half. Does that, you know, the Legislature is asking us to make a policy or a goal recommendation here.

Do you think that that goal should be subject to a rigorous cost benefit analysis? Or is it the measures that would --

MR. WHITE: Well, maybe we should --

MR. CACKETTE: -- to achieve that?

MR. WHITE: -- maybe we should first start with the cost, like the old South Coast study, about the cost of not cleaning up the air. You know, the cost of not reducing petroleum, because I think there are costs being imposed by where we're going today.

And I think that sometimes we look at the costs of the change as the sole cost that needs to be measured.

So I think if we recognize that there's costs to doing nothing, and we weigh the costs of the actions we're proposing to take against that cost of doing nothing, and I don't think given that a lot of what we're talking about are things that make sense economically, particularly on some

kind of life cycle cost basis, you know, we're talking about how to pay the costs. Not whether the costs are worth incurring.

And I think that means that we need to think about how to achieve the goal in the most cost effective manner, not whether setting the goal makes economic sense, because I think we've already got enough evidence based on what we're headed for.

And if you look at everything that all of us proposed today it's just the universe of, you know, everything from imports and expanded infrastructure on to demand reductions, technologies.

All of these things, I believe, can be costed out and are within a range of error close to being, I think a net benefit. I'm not an economist, but a net benefit compared to the costs of the do nothing scenario.

So, I think it's really a question of how do you allocate the costs of getting there, rather than whether the costs are worth being imposed.

MS. MONAHAN: If I can just continue my role of expanding on remarks that John makes, I

also think that, you know, we're all seeking this ideal, this illusive ideal market where costs are accurately reflected, and prices accurately reflect the costs, both the immediate costs, the future costs, and the difficult to quantify costs.

And I think what we find is that that market does not exist on this world. So we strive as much as possible to make that market exist. And I think that you have to look at cost effective measures first.

But you have to also try to, as much as possible, include in the calculus cost of future generation, difficult to quantify costs, and to recognize that sometimes there's going to be a limit on our abilities to analyze and make decisions based purely on economic criteria.

MR. CACKETTE: Anybody else?

MR. SMITH: Well, you know, probably the industry folks want me to answer that cost is always an important issue here. I thought the Clean Air Act was when they set the health based standards and said that they weren't supposed to be set based considering economics.

I mean I worked on some of those things originally and it just seemed like those may have

been the words, but everybody was, in the back of their mind, well, what is this going to cost.

And I think we're just playing a game if we're going to tell ourselves that we should set goals that aren't very much tied to the economics, to our society, because that impacts, you know, so many different things.

And I'm not against looking at life cycle costs. Ted and I spent a lot of time trying to talk about fuel neutrality through the California environmental dialogue, and we need to continue working through that.

Because I do think we should be trying to promote, you know, fuel neutral decisions and performance standards.

So, Tom, I think, you know, I think we can try to kid ourselves and set goals that don't reflect economics, but I think ultimately you're going to use economics to choose what you're going to do. And ultimately will affect the goal that you set, or actually achieve.

I don't know, does that help? No, it didn't help.

(Laughter.)

MR. CACKETTE: I think you accurately

represented the way you both thought and not spoke about the issue.

Anybody else in the audience?

MS. JONES: Pam Jones, Diesel Technology Forum. Some of the suggestions I've heard over the past couple of days have involved technologies that will take some time to bring to market, considerable R&D, practical adoption by people, the need to educate, the need to change behavior, whether it's land use or public transportation.

We didn't hear yesterday from the person talking about the light duty experience in Europe and what they're doing. But to summarize, I think what you can say is that they are trying to meet air emissions goals, reduced air emission goals.

They are trying to comply with the Kyoto Accord with reduced greenhouse emissions. They do have an issue with the cost of fuel over there.

But one of the approaches that they are using is to use new clean diesel technologies. Yes, it is less expensive. But one thing that I don't think has been stressed perhaps enough in the context of the report that's being written is the fuel efficiency, which is an improved fuel efficiency of between 30 and 50 percent.

And I did drive one of these 78 mile a gallon cars about ten days ago. And it is kind of a dog in terms of power. But nevertheless, there may be some uses for that.

Right now I think about 30 percent of the cars in Europe, new cars are the diesel, and about 70 percent are the higher performing vehicles, Mercedes, BMW, et cetera.

Given the goals of meeting lower emissions, meeting greenhouse gases, being more fuel efficient, reducing demand, reducing reliance on petroleum products, where might you see clean diesel fitting into the mix of solutions in this goal of reducing dependence on petroleum?

MR. WHITE: In the heavy duty sector. I think that your point is well taken. The Europeans are very much focused on CO2. I don't think they have the same understanding as we do about the health impacts of diesel.

I think the one place that the light duty diesel doesn't fit is with respect to public health impacts.

But I think that the point you make about efficiency, and you know, that's the other thing you do see in Europe, is a lot more diesel

in the light duty sector.

And I just think in California the standards are such that they can't meet them, they can't meet the performance standard that's been set with respect to particulate and toxic emissions.

So, for now, it's not an option. But I think in the heavy duty sector the opportunity to turn over the diesel infrastructure with new technologies is a very important one, and will help us a lot.

MR. SMITH: Well, I was encouraged the other day by the one slide that showed that diesel, that they're making progress in NOx reductions in light duty diesel vehicles.

Maybe somebody can help me with this. It seemed like they were meeting the 90 percent plus reduction of diesel, of NOx reductions over some distance, 100,000 kilometers or something like that, 50,000 miles. I mean they've got a ways to go, obviously, but that's the first time I'd seen that data. So that was pretty encouraging.

You know, again, we like to see performance standards, and California has set

performance standards for their future vehicles. And I wouldn't be surprised if diesel comes through and able to meet those criteria pollutants, NOx, you know, CO, whatever you want to say.

The question of toxicity is an interesting one, and we obviously have been very much involved in this at the South Coast with Paul and other folks.

You know, I'm not a toxicologist, but sometimes when we talk about diesel and particulate and the risk, we talk about what we know. We sometimes don't talk about what we don't know. And that has to do with what kinds of risk are associated with what we're replacing diesel with maybe in the short come.

You know, I'm not going to go into the toxicity, but there's a lot of work going on, somewhere going on, with the South Coast, and compliment them for doing this work with us, to compare clean diesel vehicles, cleaner diesel vehicles, particulate traps versus some CNG, late model CNG vehicles. And trying to get a better handle at this toxicity risk between these two types of vehicles.

And we don't know the results of that yet. It may be that the purported risk of these newer diesel vehicles won't be that much different than the CNG vehicles or other vehicles.

And, again, let me remind you, we produce a lot of natural gas.

MR. LUCAS: If I might, Bob Lucas, representing California Council for Environmental and Economic Balance, and I didn't plan to say anything today, but you raise an interesting question about economics as associated with the goals.

What I'd like to point out is that oftentimes goal statements, themselves, mean different things to different people. And oftentimes goal statements are made in a visionary sense. And I believe that's what John was referring to.

And the closer you are to a visionary sense of a goal statement the less connected you need to be to environment.

The closer you are, though, to a mandate and to an objective measurably and achievably oriented goal statement, though, the more you do need to pay attention to the economics of it.

And I don't think that you would find much objection if you were to follow the visionary path, if you were to ignore economics. But the closer you'd get to the other side of the equation I think you will find greater concern that you do take a look at what the costs might be.

And, you know, we're not that far from an example of how this plays out when the two are mixed. The ZEV mandate, incidentally, you know, appears on its surface to be obviously an objective mandate. But it really was a visionary statement that also had achievability tied to it.

And we've worked ten years to try to find an appropriate home for the ZEV mandate and as different things have spun off of it.

So I just leave you with that simple comment, if I might.

MR. WHITE: If I might point out, Bob, visionary as it may have been, the results were measurable and were achieved. And the goal was adjusted in response to actions in the marketplace.

The problem found to be associated with a visionary goal that has no cost impact, the problem is that has no consequence. It doesn't

stimulate any action.

You know, I think what we need is to set a goal that causes action and investment to occur, and then depending on what responses we get, we can adjust.

And again I'd stress that the cost of not acting are also costs. And right now I think we're headed on a path that looks to me like it's going to impose some fairly significant societal and economic costs.

And I'd like us to work back from that do nothing goal with some other specific ideas about how to get results. And maybe we have to adjust them as we go, but I don't, at the moment, see actions being taken on a voluntary basis that are going to move us forward, absent some stimulus or some mandate or some call to action that causes people to change their business as usual practices.

MR. LUCAS: Right. And I'm not here to either criticize the ZEV mandate or what everyone has gone through over the last ten years in trying to make it a reality, or to define what it has become.

What I'm suggesting --

MR. WHITE: That's why we got the progress Dave spoke about earlier, that we hadn't even imagined would have been possible.

MR. LUCAS: What I am suggesting is that as we consider the role of economics and goal setting, and this project in particular, that we try to be as discerning as we can in that regard.

And that the closer the goal statement becomes to an achievable and measurable reality, the closer I think we should pay attention to the economic consequences of it, and its reasonableness.

Thank you.

MS. MONAHAN: I agree. I think that it's also you need to be reflective, but technology forcing regulations are, by their very nature, visionary. They have to be, because we're not there yet.

And so there has to be some kind of feedback process. I completely agree that there needs to be some way to come back to the regulators and say, well, this works or this doesn't work.

But that doesn't mean, I mean if you don't have technology forcing regulations you'll

never achieve your goal. You need some kind of visionary component to that.

MS. LEVIN: I'm Julia Levin from the Union of Concerned Scientists. Many of the panelists and the speakers have talked about costs. And I think this is an issue that we need to grapple with more directly.

I should like to make a suggestion or a request of CEC, possibly in conjunction with ARB, to do a much more in-depth cost analysis of fuel consumption and compare that to reductions in fuel use over the next 10 to 20 years, that really takes into account all of the costs, including the cost of public health, to agricultural productivity, to forest productivity, to water quality, offshore oil spills, the costs of paving and repaving our roads, the cost of toxics from refineries.

And really add it up on a balance sheet, and leave question marks where there are question marks.

But I think it's incumbent upon the state to make an informed decision when we're choosing between a goal of a 20 percent reduction in demand, or no reduction demand, or just half of

the increase that's being forecast.

I would argue that none of those are acceptably low goals for the next 10 to 20 years if you really add up all of the costs. I think that the picture would look very different.

But I've yet to see a truly thorough assessment of what are those costs. I mean, California -- just on the global warming side California produces 1 to 2 percent of all of the world's global warming emissions. And I think within a decade we will be able to start to quantify the costs of global warming as we have more frequent and severe storms, and all sorts of other problems.

We need to begin to assess those costs. And I think we can really begin to talk about markets, when we have a better understanding of the full picture.

So, I'd be happy to work with the agencies, try to go to the Legislature, get funding for that if that would help. But I think that would really help to inform this whole debate.

DR. TRINDADE: My name is Sergio Trindade, New York based international consultant.

I felt throughout this discussion a need to develop or articulate better the concept of dependence. As you are preparing to draft legislation or suggested legislation it would be important for the population at large to understand what you mean by dependence.

We have seen here there are many sides to dependence, but simplistically you have a demand side to dependence, which we have examined, several speakers and panel members.

We also have a supply side to dependence. And on that supply side one may think dependence on what, on energy originating from California, from the United States, from North America, from the NAFTA area, or from the future free trade area of the Americas, which is under negotiation.

That varies a lot in terms of concept, and therefore in terms of the draft of the future legislation.

And another thing is the implementing or in suggesting measures to implement these less dependence that you will articulate eventually. It's very important to also indicate the barriers, the restraints to what you can do.

For instance, I'm very much for the idea of partnerships. When at some point in time in my career worked at the United Nations, I developed the concept of stakeholders dialogues, which didn't exist in the 1980s.

However, in practice, in a litigation society like the United States is, there are lots of questions of antitrust if you bring too many parties of the same industry together, which you have to be aware of in proposing these things.

Also, when you talk about importing fuels, nobody talked about importing renewable fuels. And what kinds of barriers exist to import renewable fuels to supplement your totality of fuels.

Thank you very much.

MR. SMITH: There certainly are barriers to importing of renewable fuels, ethanol, from other countries. And certainly that should be discussed as to, you know, how those are helping or not. Especially if we do get into a renewable oxygenate mandate situation. If the federal government goes ahead and changes the current oxygenate mandate to a renewable oxygenate mandate, the issues of subsidies, incentives and

import duties on ethanol should be reviewed, and should be included in our discussions.

Good point.

MR. CACKETTE: Okay, I think we've gone over our deadline by a little bit here, so if you'd join me in applause for the panel. You did a great job.

(Applause.)

MR. FONG: Thank you, Tom. Before I turn this over to Susan Brown who will make some concluding remarks, we did receive a card from the audience. And I was wondering if Jerry Pohorsky is in the audience? Would you like to make a few remarks?

MR. POHORSKY: I'm Jerry Pohorsky; I'm a consumer from Santa Clara. I drove up in my ED1, so I made this trip independent of petroleum fuel.

I've had personal experience with first a propane vehicle, also one of the M-85 FFEs. And what I'm asking is that the consumer is fully supported in making a switch to one of these alternatives.

Yesterday it was mentioned that there's 150,000 FFEs that will run on E-85, and yet you can't buy it in this state. The CAFE credits were

given with no thought of where's the supply for this coming from.

The ZEV mandate provides incentives, or actually different Assembly bills, I'm getting a huge buy down on my monthly costs. I'm paying 209 a month for my ED. Normally that should be almost $400.

So I'm getting an incentive, but there's a lot of people that want one, the vehicles just aren't there. I was on a waiting list for an extremely long time to get one. But there's so many more that were on those waiting lists and they were turned away, sorry, we made a few in 1997, made a few more in 1999, we don't plan on making any more.

So, just keep those things in mind for the consumer. Thank you.

MS. BROWN: Thank you. And thank you, Tom. I have just a few brief closing remarks, and then a couple of announcements.

First, I want to thank all of the presenters and the panel moderators for the high quality of the presentations that we've received over the last couple of days. I think it's safe to say that we've advanced our thinking

tremendously on these difficult and complicated issues.

And I think we can all agree that there is no one single solution to reducing petroleum dependence.

I do want to underscore what Dave Smith has said about the need for an unprecedented level of cooperation among all of the parties. And we will try to put our heads together and figure out the best format and forum for having those interactive discussions. Because I think that they would be very instructive and important.

I also want to say that the staffs of both agencies take the responsibilities under AB-2076 extremely seriously, and will be meeting and conferring over the next couple of weeks to try to come up with that strategy that both agencies can support.

I want to also reinforce the need for public comment. Many of you have asked me what is the venue for providing written comments. The first round of comments we've asked for in writing by the end of September. I wanted to note that you can email those comments to the Energy Commission's docket, and refer to the docket

number 1-SRPD, that's strategy for reducing petroleum dependence, dash -1. That's 1-SRPD-1. And we would encourage you, especially those of you that didn't make a presentation these last two days, to provide written comments to us on the recommended strategies and goals that you think we should pursue.

I also wanted to note that we are going to produce a transcript of these proceedings. That should be available in approximately two weeks. It will be placed on our website.

If you want hard copies of the transcript you will have to request them from the docket office. And there is a nominal charge for that. I think it's ten cents a page.

Lastly, the presentations that you've seen, we do also intend to put up on our website in the next couple of days. Many of you have asked me about that.

Again, the high quality of the presentations warrants further evaluation and discussion. And I think you should take advantage of the opportunity to get those presentations.

So, again, thank you all very much for being here.

If there are no further comments, this meeting is adjourned.

(Whereupon, at 12:45 p.m., the joint workshop was concluded.)

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CERTIFICATE OF REPORTER

I, VALORIE PHILLIPS, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Joint Workshop; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop, nor in any way interested in outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this 28th day of September, 2001.

VALORIE PHILLIPS